

EXHIBIT 2



US005909492A

United States Patent

[19]

Payne et al.

[11] **Patent Number:** **5,909,492**
 [45] **Date of Patent:** **Jun. 1, 1999**

[54] NETWORK SALES SYSTEM

[75] Inventors: **Andrew C. Payne**, Lincoln; **Lawrence C. Stewart**, Burlington, both of Mass.; **David J. Mackie**, Brookdale, Calif.

[73] Assignee: **Open Market, Incorporated**, Cambridge, Mass.

[21] Appl. No.: **08/878,396**

[22] Filed: **Jun. 18, 1997**

Related U.S. Application Data

[63] Continuation of application No. 08/328,133, Oct. 24, 1994, Pat. No. 5,715,314.

[51] **Int. Cl.⁶** **H04L 9/00**

[52] **U.S. Cl.** **380/24**; 380/23; 380/25; 380/49; 380/50; 705/26; 705/27; 705/39; 705/40; 705/44

[58] **Field of Search** 380/4, 9, 21, 23, 380/24, 25, 49, 50; 235/379, 380; 705/26, 27, 39, 40, 41, 42, 43, 44, 14, 16

[56] References Cited**U.S. PATENT DOCUMENTS**

4,305,059	12/1981	Benton .
4,528,643	7/1985	Freeny, Jr. .
4,529,870	7/1985	Cham
4,578,530	3/1986	Zeidler .
4,734,858	3/1988	Schlafly .
4,755,940	7/1988	Bracht et al. .
4,759,063	7/1988	Cham
4,759,064	7/1988	Cham
4,775,935	10/1988	Yourick .
4,795,890	1/1989	Goldman
4,799,156	1/1989	Shavit et al. .
4,812,628	3/1989	Boston et al.
4,827,508	5/1989	Shear
4,891,503	1/1990	Jewel
4,922,521	5/1990	Krikke et al. .
4,926,480	5/1990	Cham
4,935,870	6/1990	Burk, Jr. et al. .
4,947,028	8/1990	Gorog .
4,947,430	8/1990	Cham

4,949,380	8/1990	Chaum	380/30
4,972,318	11/1990	Brown et al.	705/26
4,977,595	12/1990	Ohta et al.	380/24
4,982,346	1/1991	Girouard et al. .	
4,987,593	1/1991	Chaum	380/3
4,991,210	2/1991	Chaum	380/30
4,992,940	2/1991	Dworkin .	

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

0 172 670	2/1986	European Pat. Off.	G07F 7/00
0-542-298-A2	5/1993	European Pat. Off. .	
4-10191	1/1992	Japan	705/26
2102606	2/1983	United Kingdom .	
WO 91/16691	10/1991	WIPO .	
WO 93/10503	5/1993	WIPO	G06F 15/30

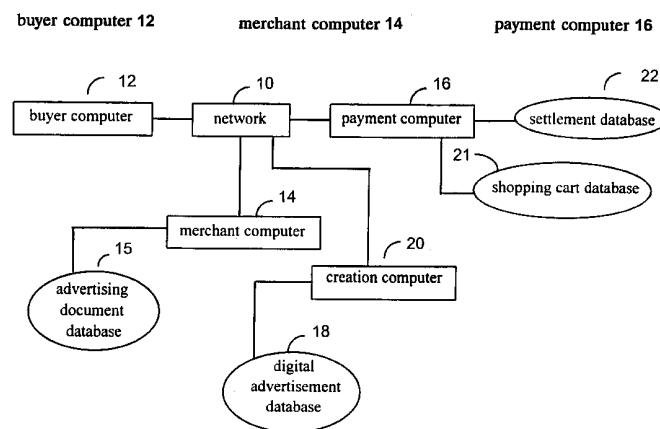
OTHER PUBLICATIONS

Contents of "Welcome first-time visitors" at www.amazon.com on the Internet as of Jun. 29, 1998.

Primary Examiner—Bernarr E. Gregory
Attorney, Agent, or Firm—Fish & Richardson P.C.

[57] ABSTRACT

A network-based sales system includes at least one buyer computer for operation by a user desiring to buy a product, at least one merchant computer, and at least one payment computer. The buyer computer, the merchant computer, and the payment computer are interconnected by a computer network. The buyer computer is programmed to receive a user request for purchasing a product, and to cause a payment message to be sent to the payment computer that comprises a product identifier identifying the product. The payment computer is programmed to receive the payment message, to cause an access message to be created that comprises the product identifier and an access message authenticator based on a cryptographic key, and to cause the access message to be sent to the merchant computer. The merchant computer is programmed to receive the access message, to verify the access message authenticator to ensure that the access message authenticator was created using the cryptographic key, and to cause the product to be sent to the user desiring to buy the product.

38 Claims, 25 Drawing Sheets

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U.S. PATENT DOCUMENTS

4,996,711	2/1991	Chaum	380/30	5,414,833	5/1995	Hershey et al. .
5,025,373	6/1991	Keyser, Jr. et al. .		5,521,631	5/1996	Budow et al. .
5,060,153	10/1991	Nakagawa .		5,535,229	7/1996	Hain, Jr. et al. .
5,077,607	12/1991	Johnson et al. .		5,557,516	9/1996	Hogan
5,105,184	4/1992	Pirani et al. .		5,557,518	9/1996	Rosen
5,220,501	6/1993	Lawlor et al. .		5,557,798	9/1996	Skeen et al. .
5,247,575	9/1993	Sprague et al.	380/9	5,590,197	12/1996	Chen et al.
5,276,736	1/1994	Chaum	380/24	5,592,378	1/1997	Cameron et al.
5,305,195	4/1994	Murphy .		5,594,910	1/1997	Filepp et al. .
5,311,594	5/1994	Penzias	380/24	5,596,642	1/1997	Davis et al.
5,319,542	6/1994	King, Jr. et al.	705/27	5,596,643	1/1997	Davis et al.
5,321,751	6/1994	Ray et al.	380/24	5,604,802	2/1997	Holloway
5,336,870	8/1994	Hughes	235/379	5,621,797	4/1997	Rosen
5,341,429	8/1994	Stringer et al.	380/23	5,623,547	4/1997	Jones et al.
5,347,632	9/1994	Filepp et al. .		5,642,419	6/1997	Rosen
5,351,186	9/1994	Bullock et al. .		5,694,551	12/1997	Doyle et al.
5,351,293	9/1994	Michener et al.	380/21	5,715,314	2/1998	Payne et al.
5,383,113	1/1995	Kight et al. .		5,724,424	3/1998	Gifford

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buyer computer 12 merchant computer 14 payment computer 16

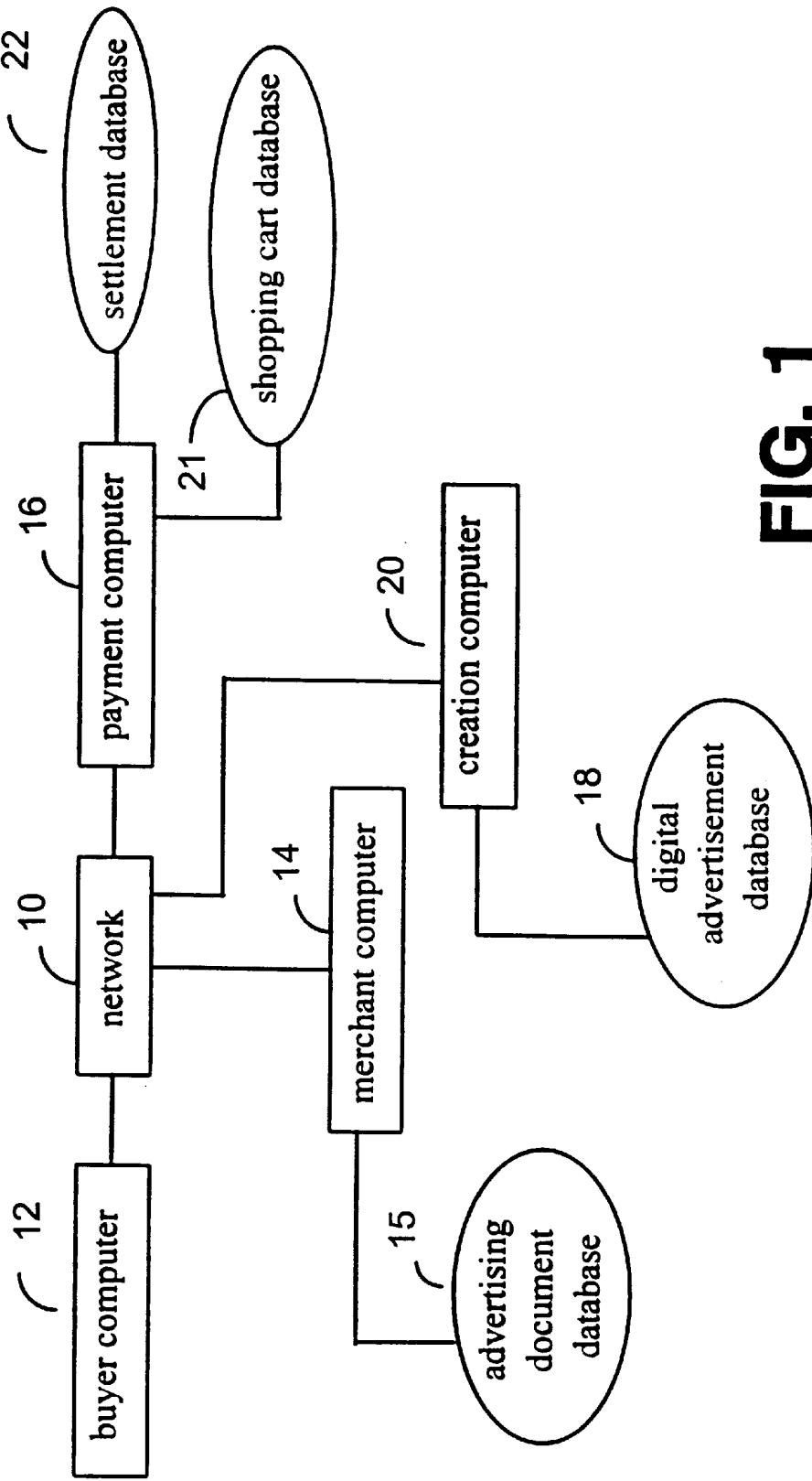


FIG. 1

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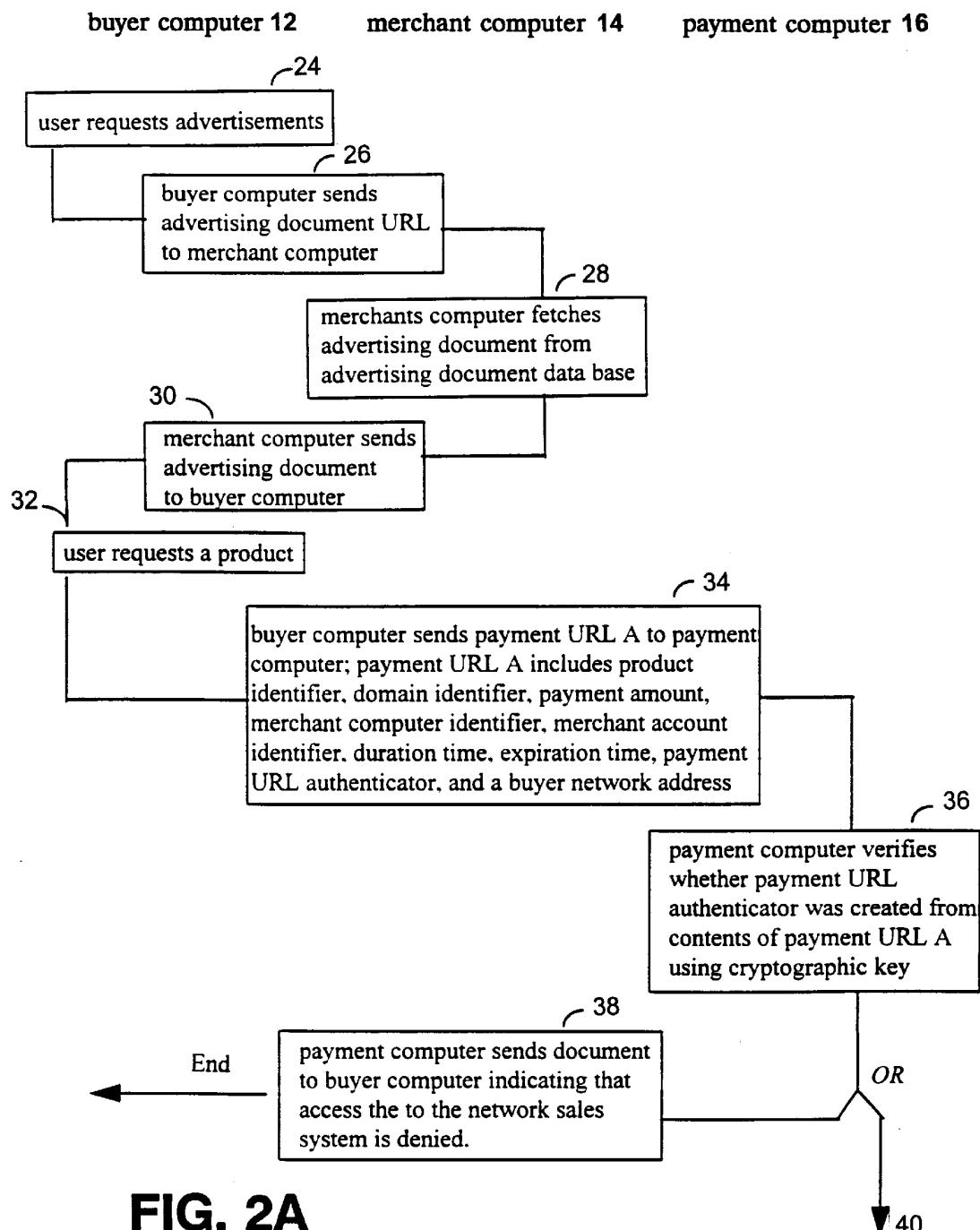


FIG. 2A

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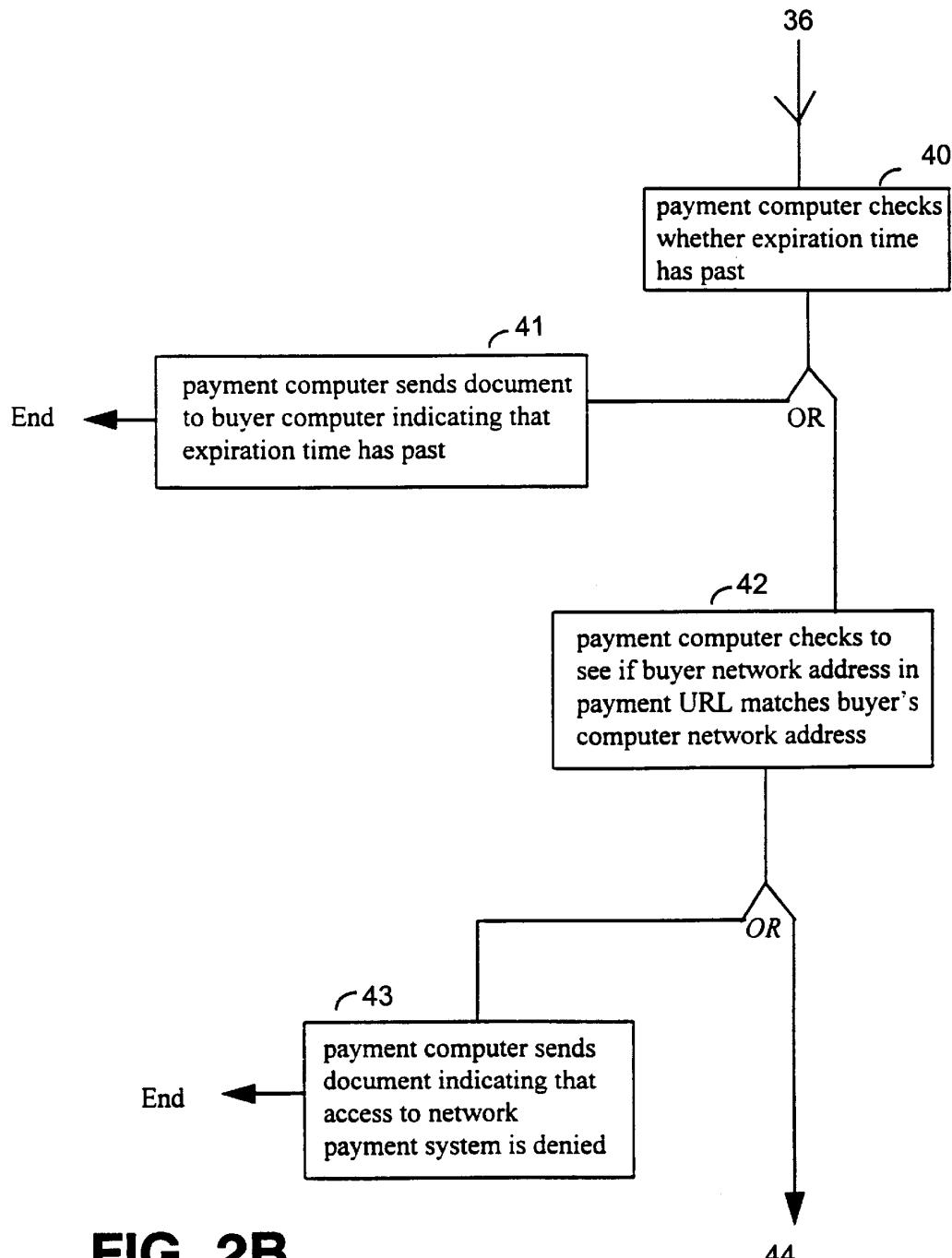
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buyer computer 12

merchant computer 14

payment computer 16

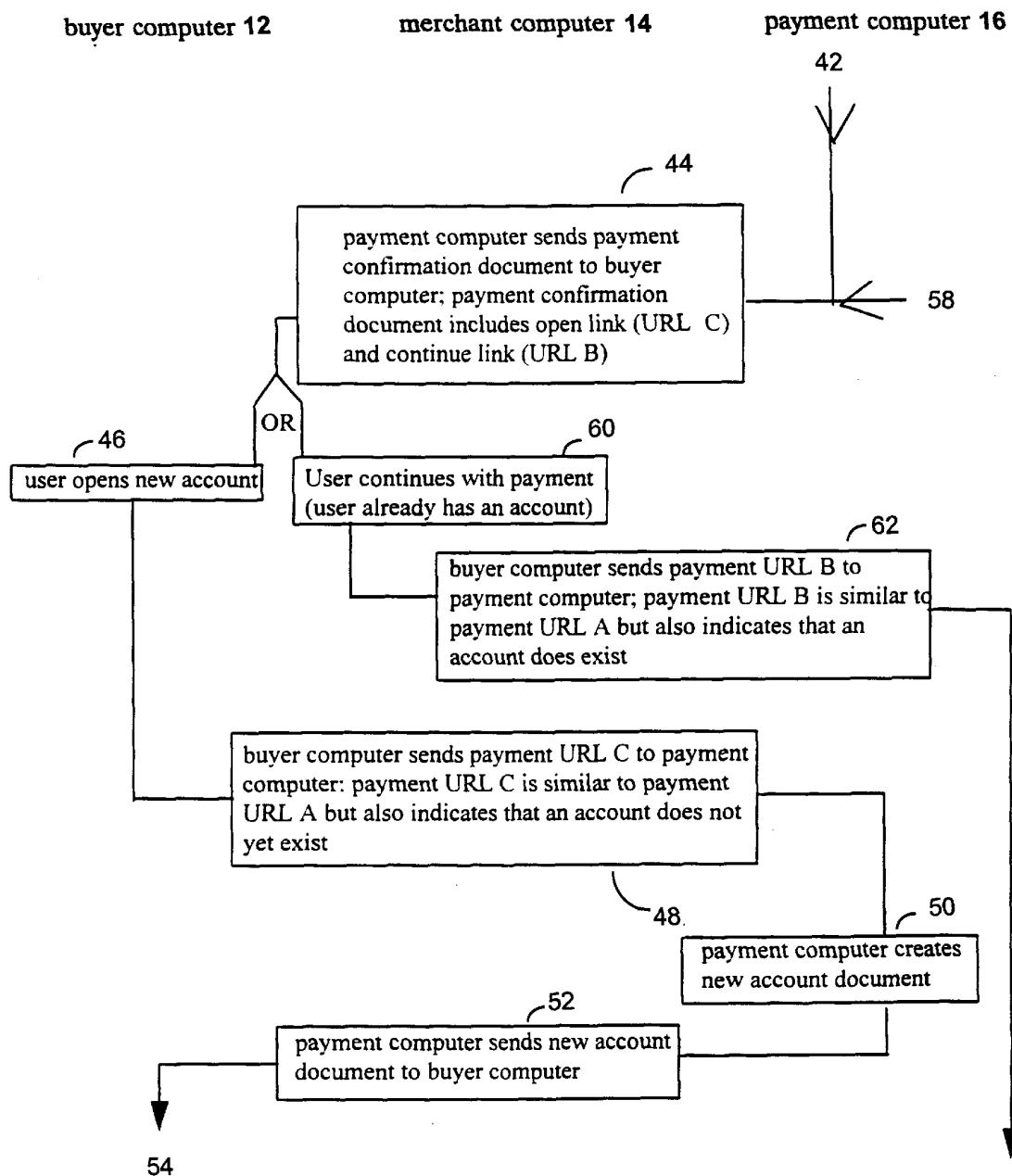
**FIG. 2B**

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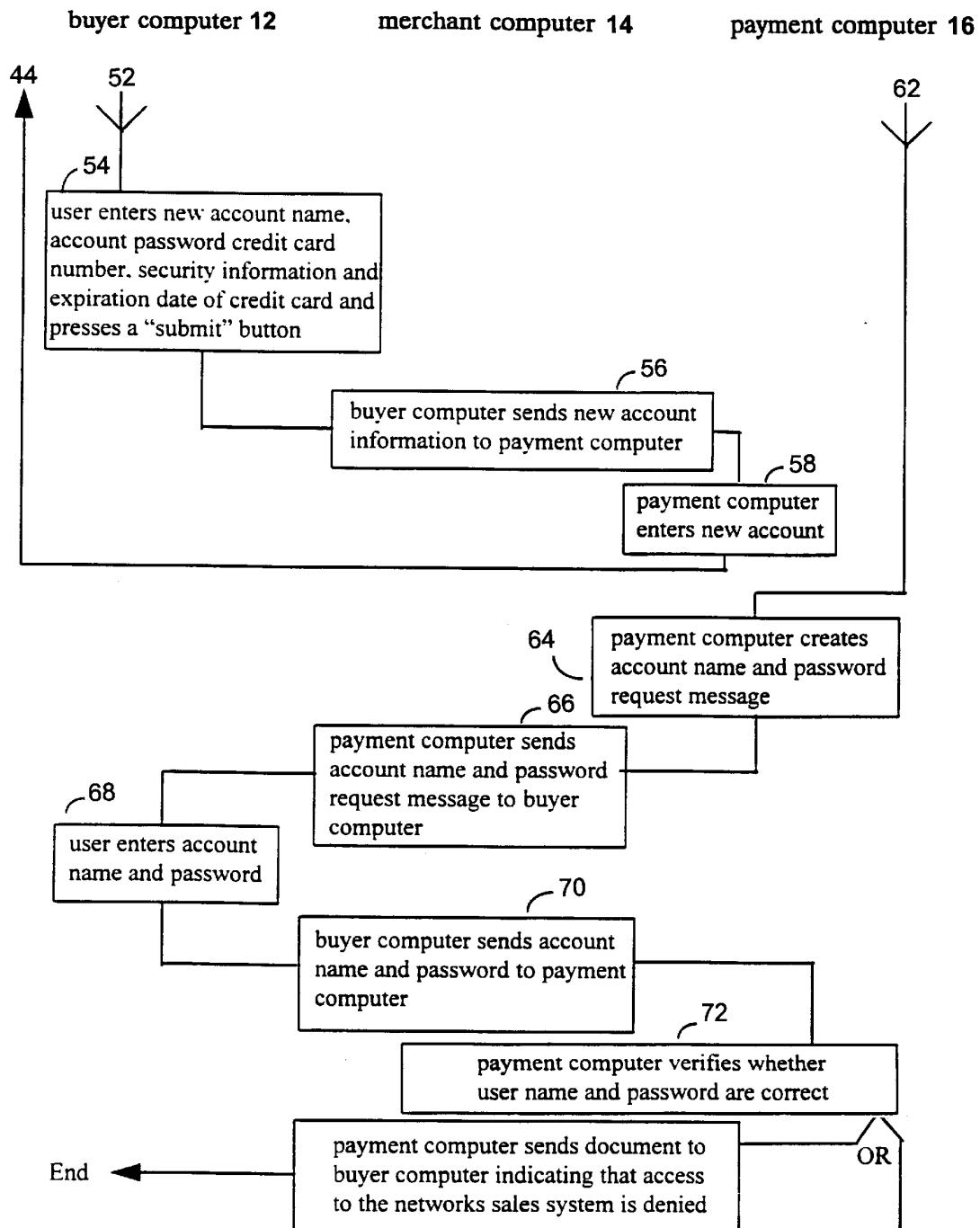
**FIG. 2C**

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**FIG. 2D**

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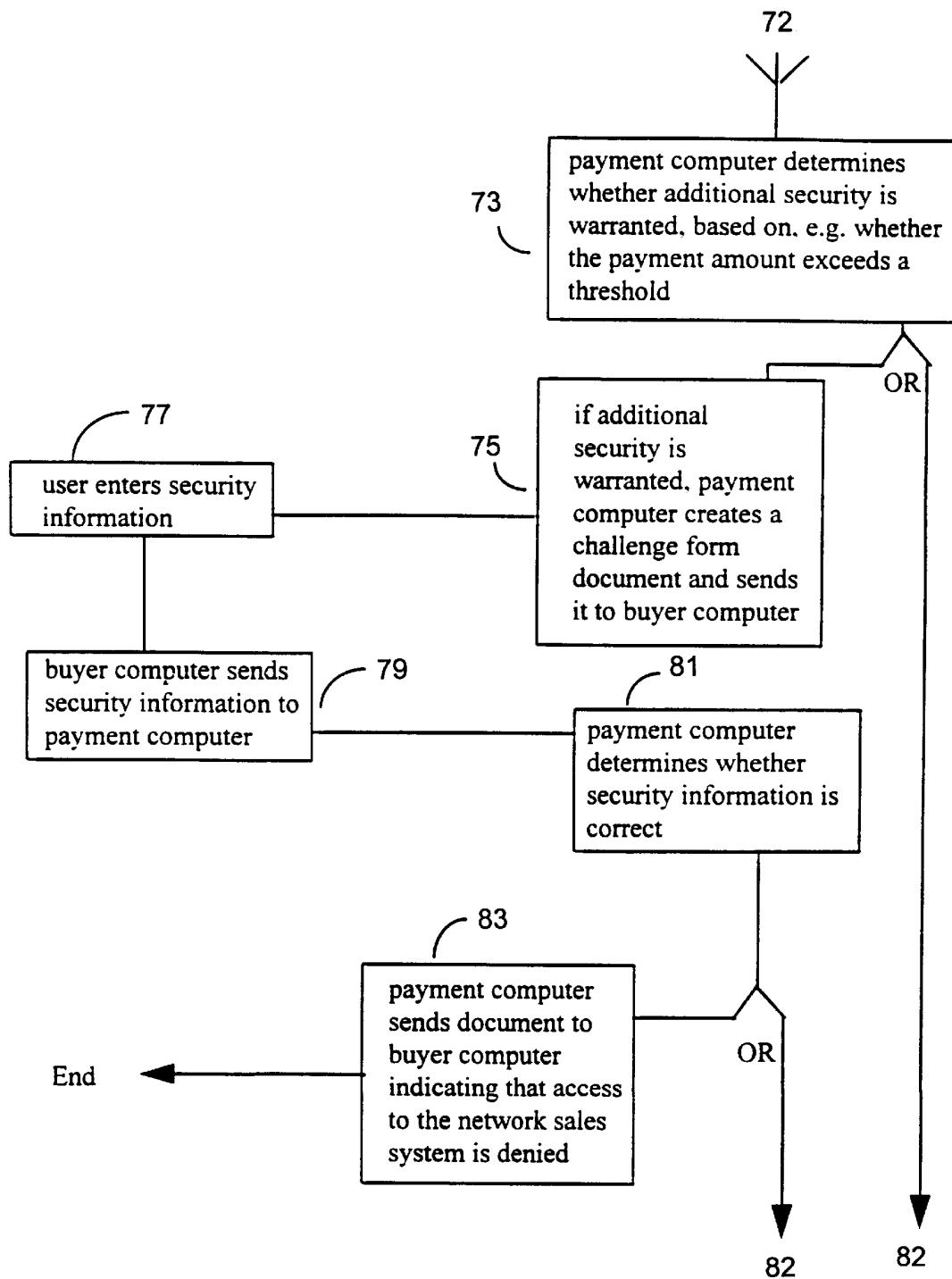
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buyer computer 12

merchant computer 14

payment computer 16

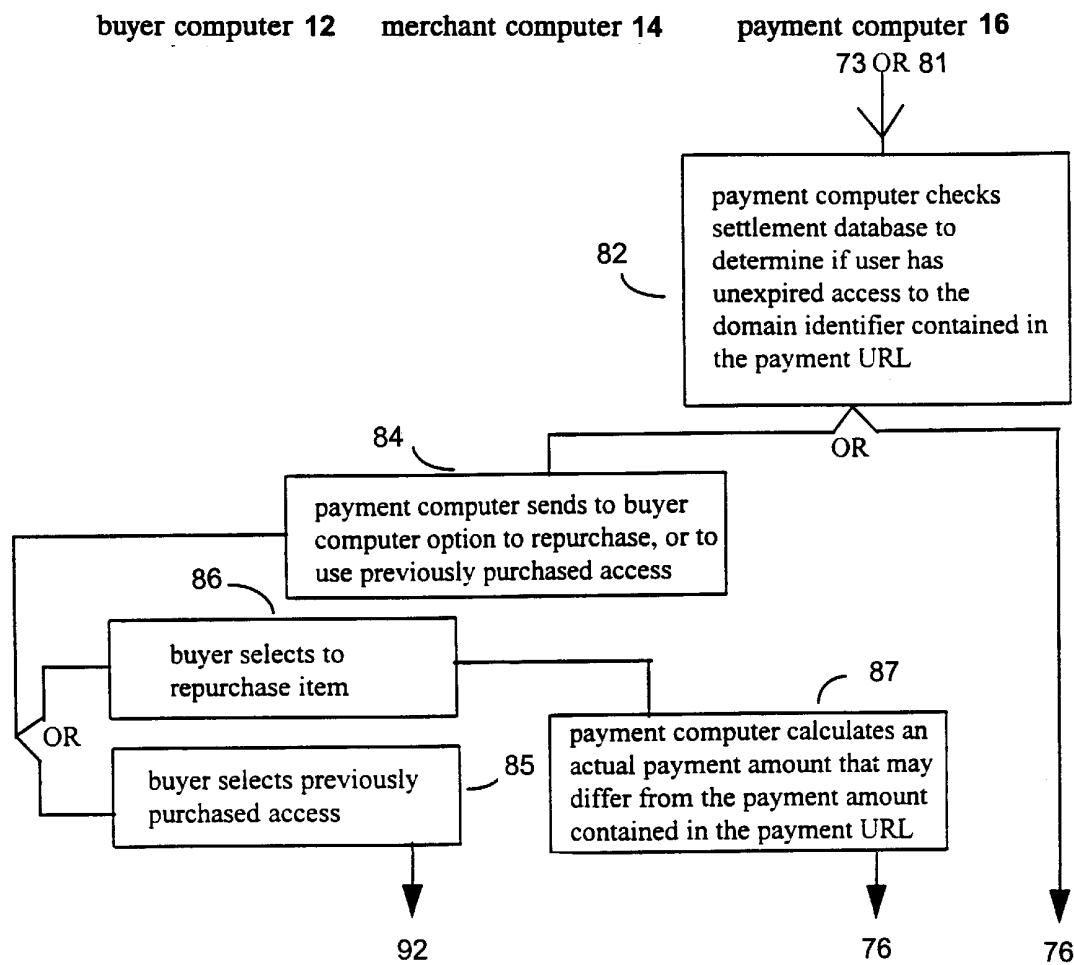
**FIG. 2E**

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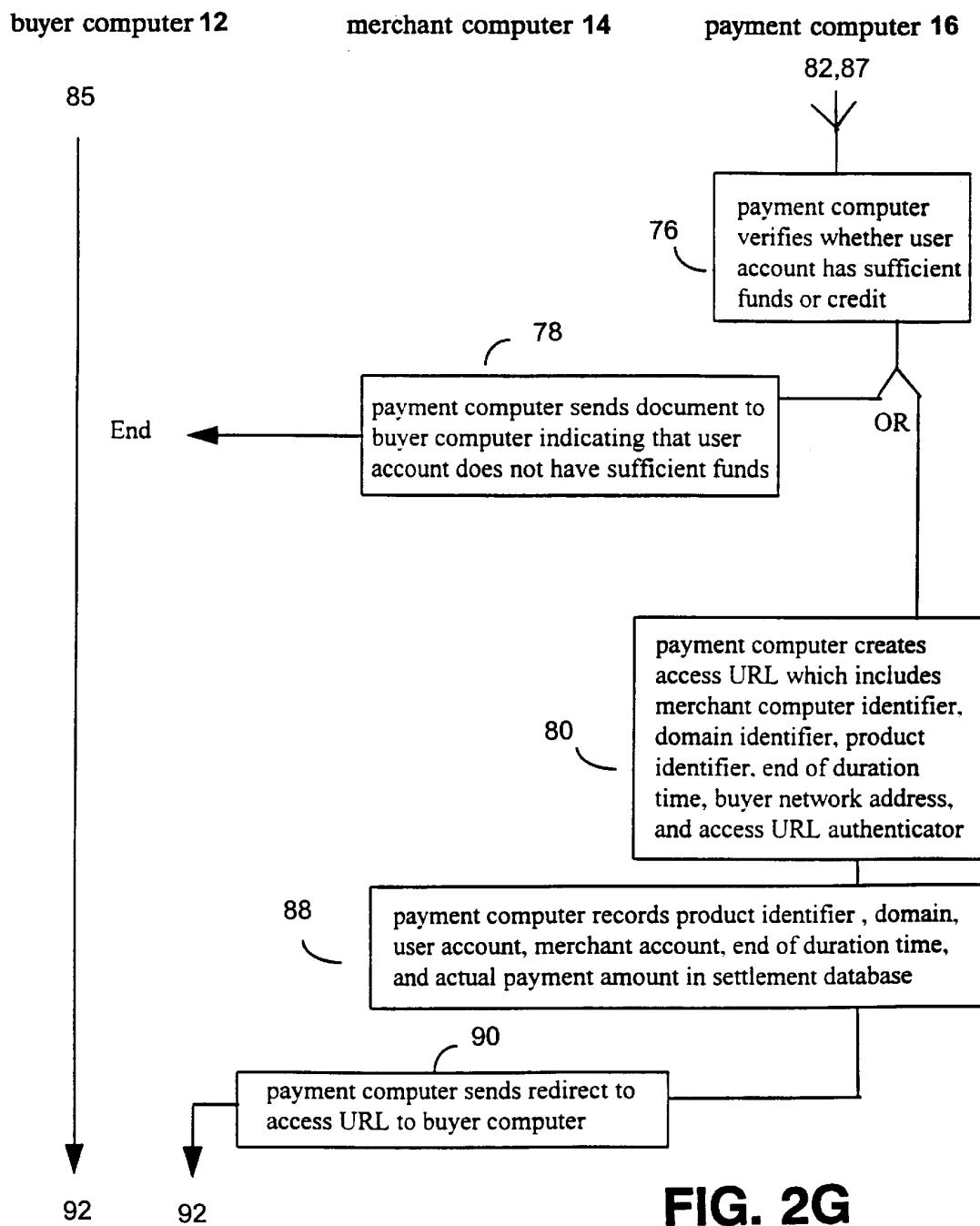
**FIG. 2F**

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**FIG. 2G**

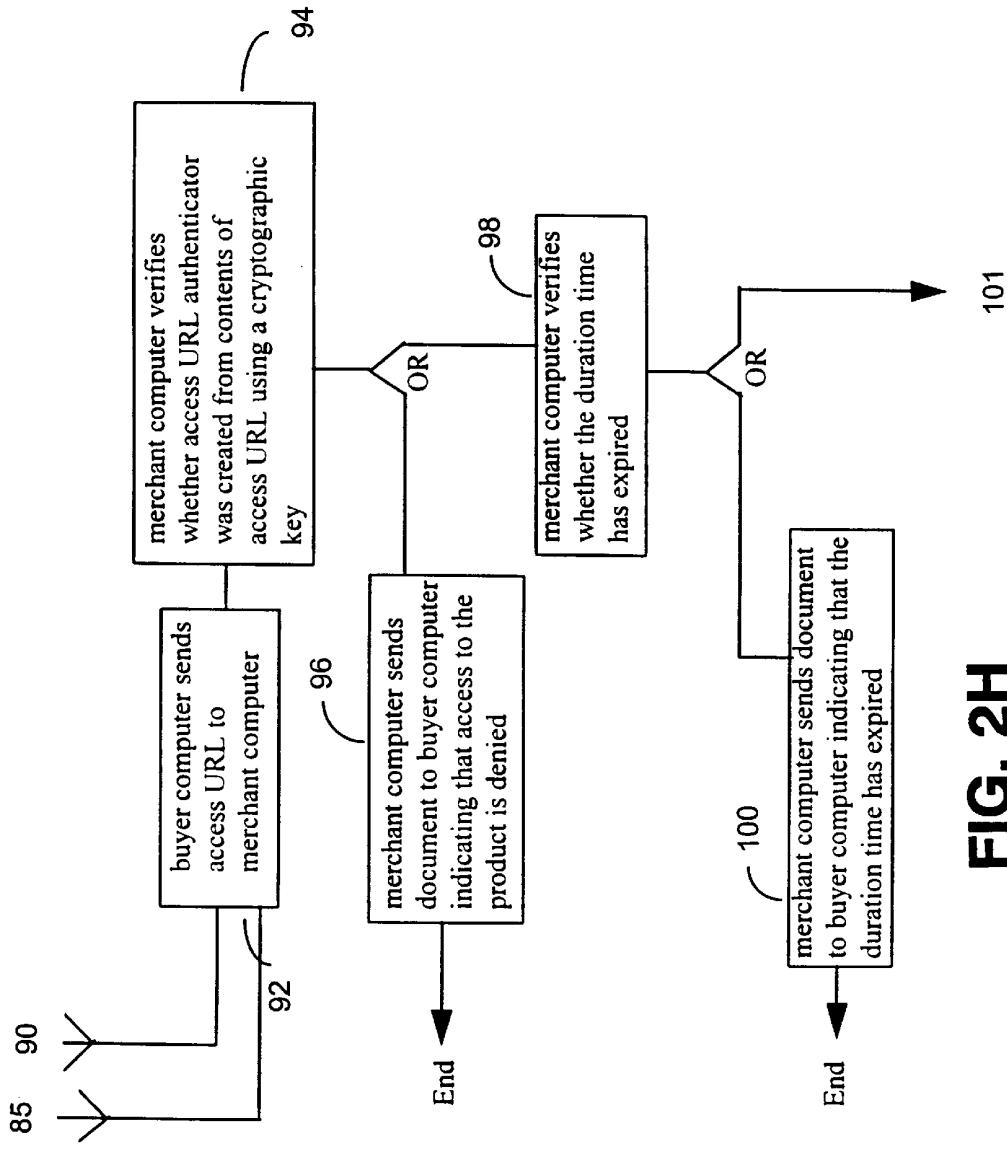
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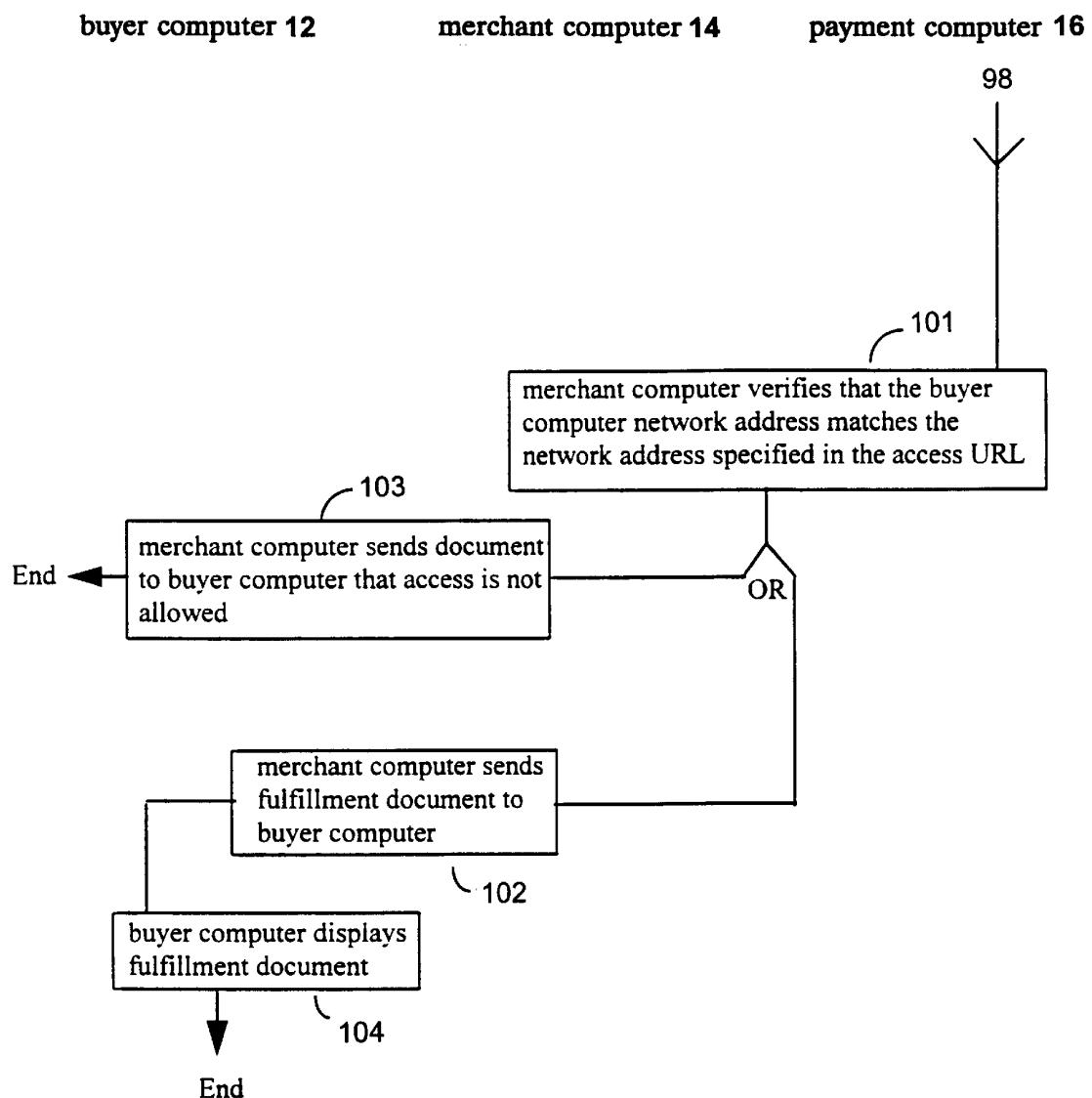
buyer computer 12 merchant computer 14 payment computer 16

**FIG. 2H**

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5,909,492**FIG. 2I**

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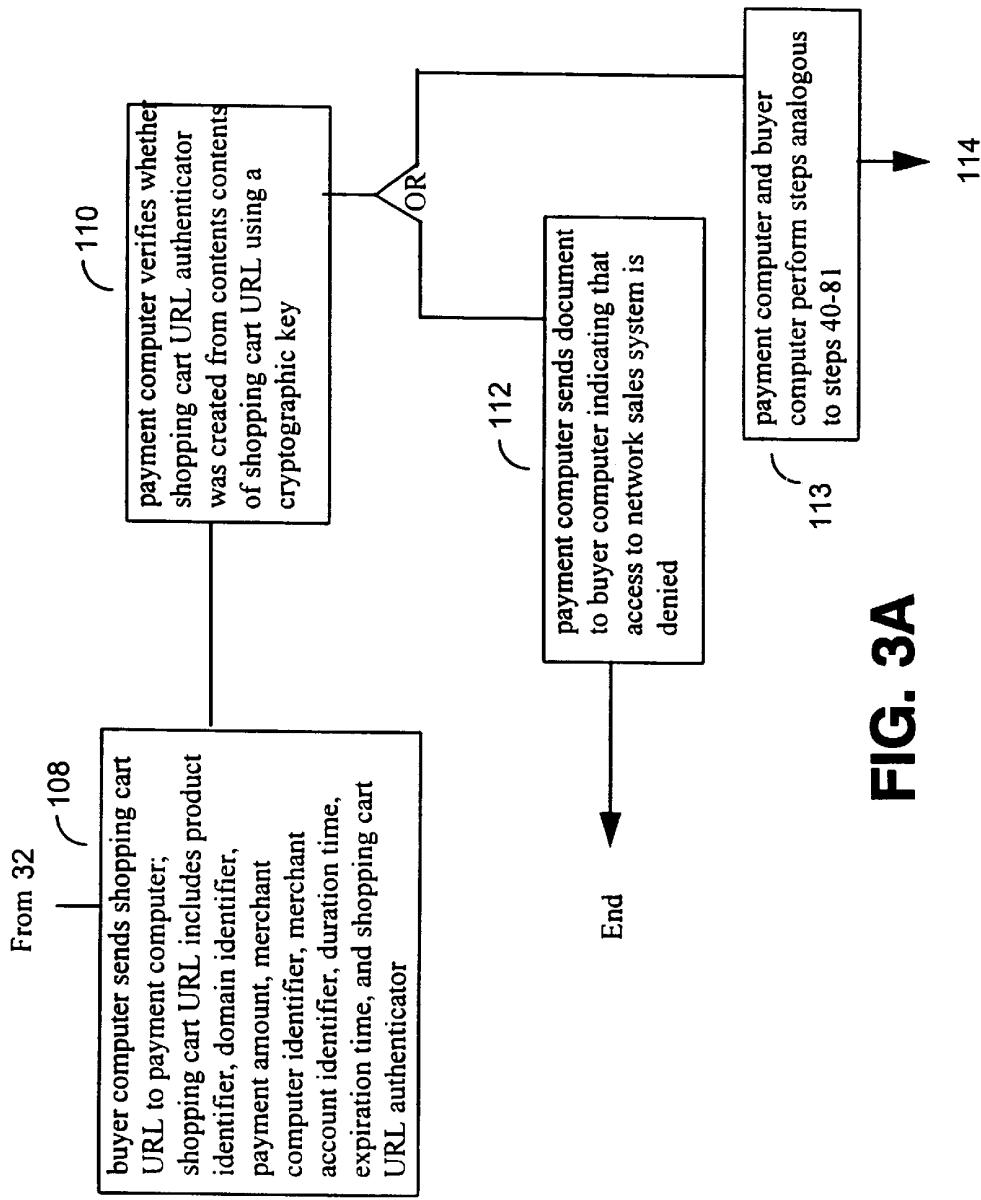


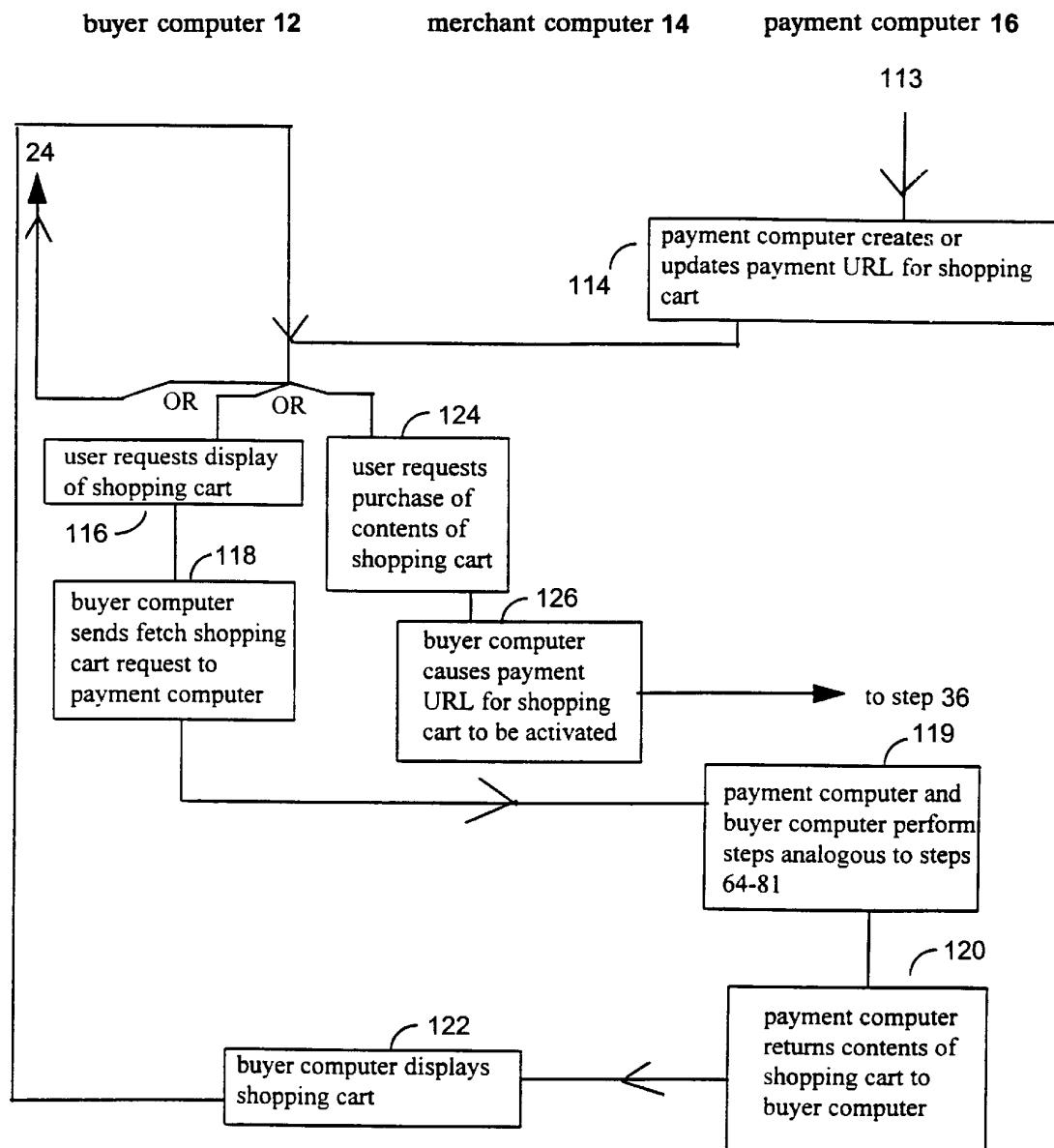
FIG. 3A

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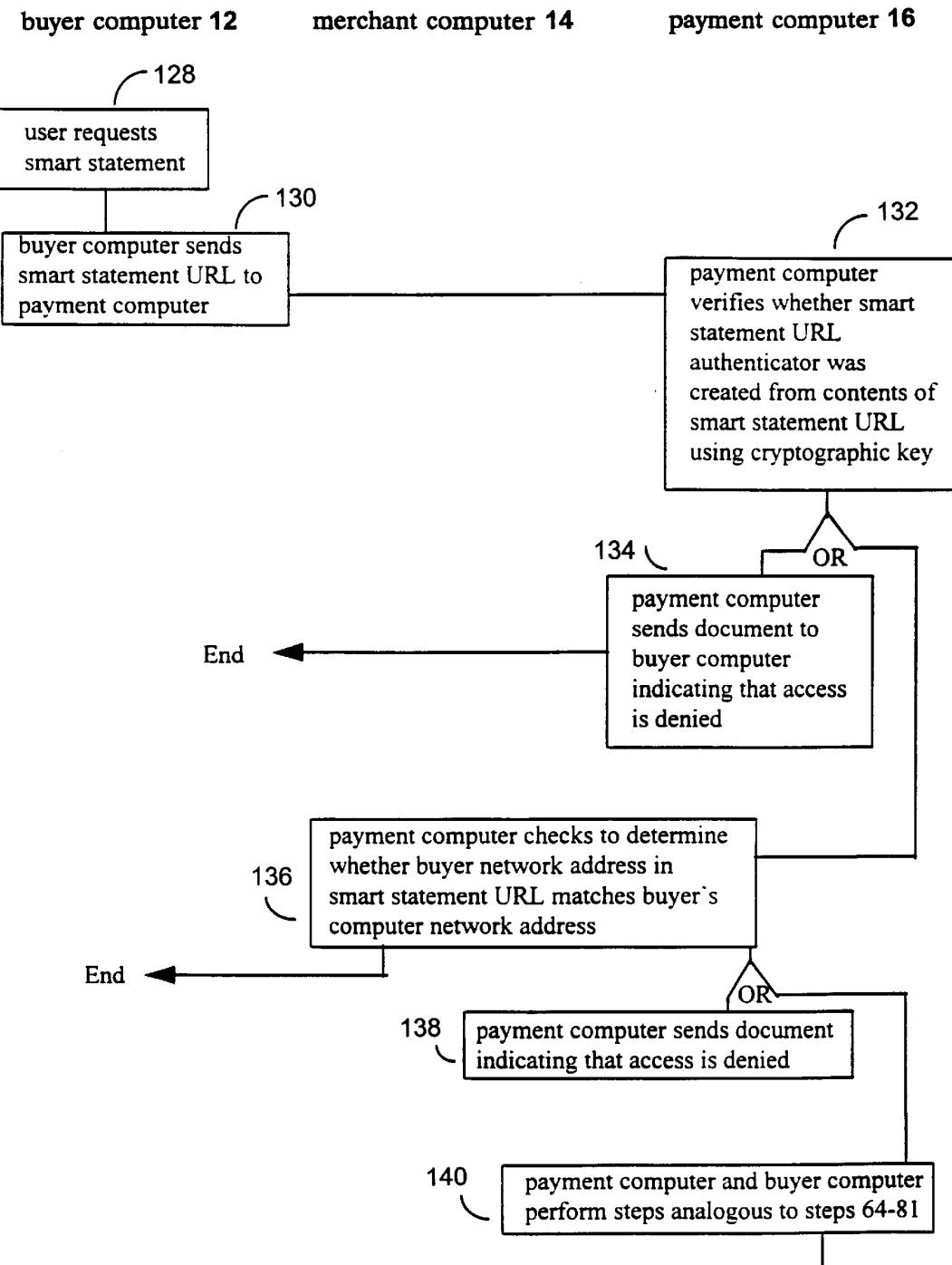
**FIG. 3B**

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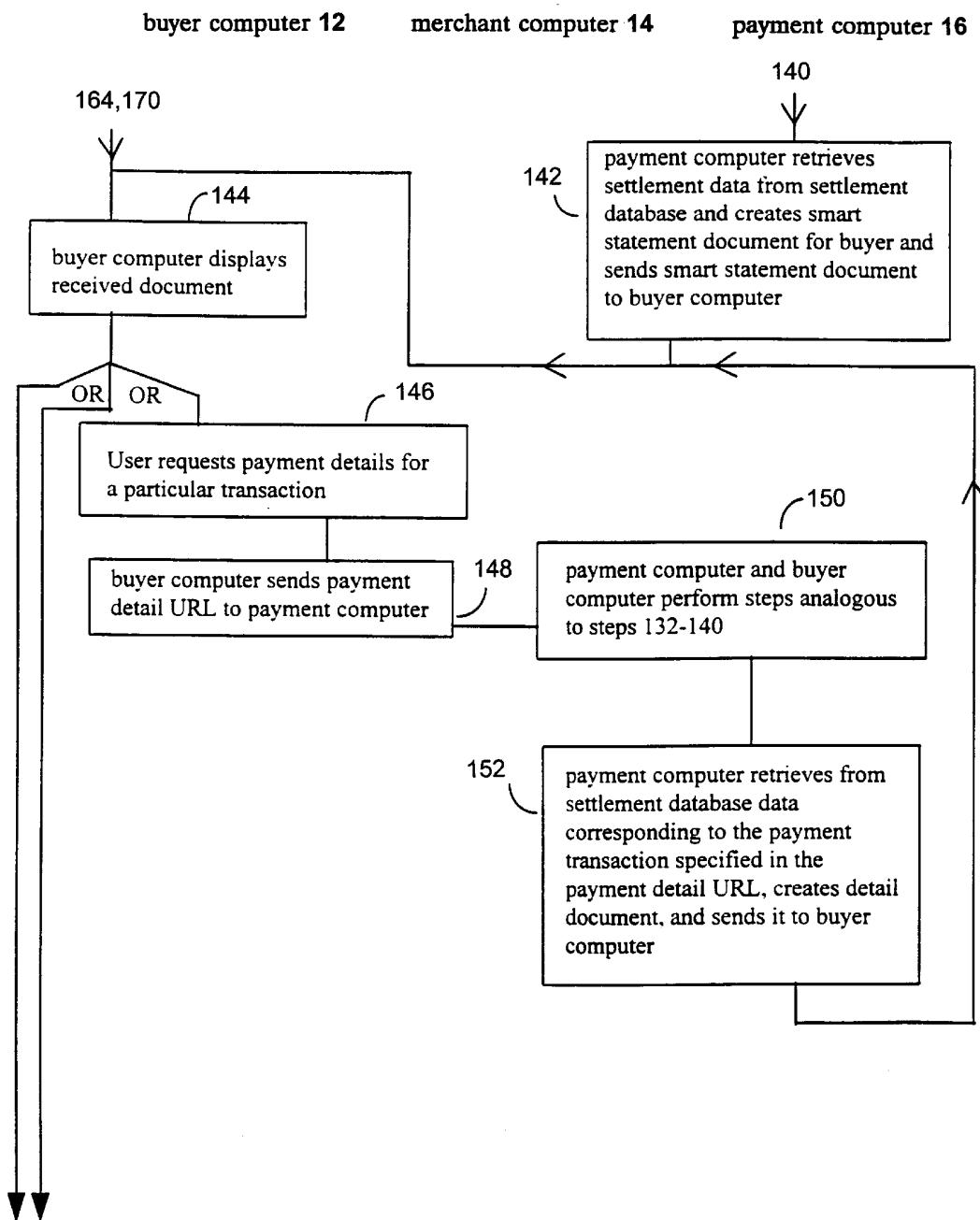
**FIG. 4A**

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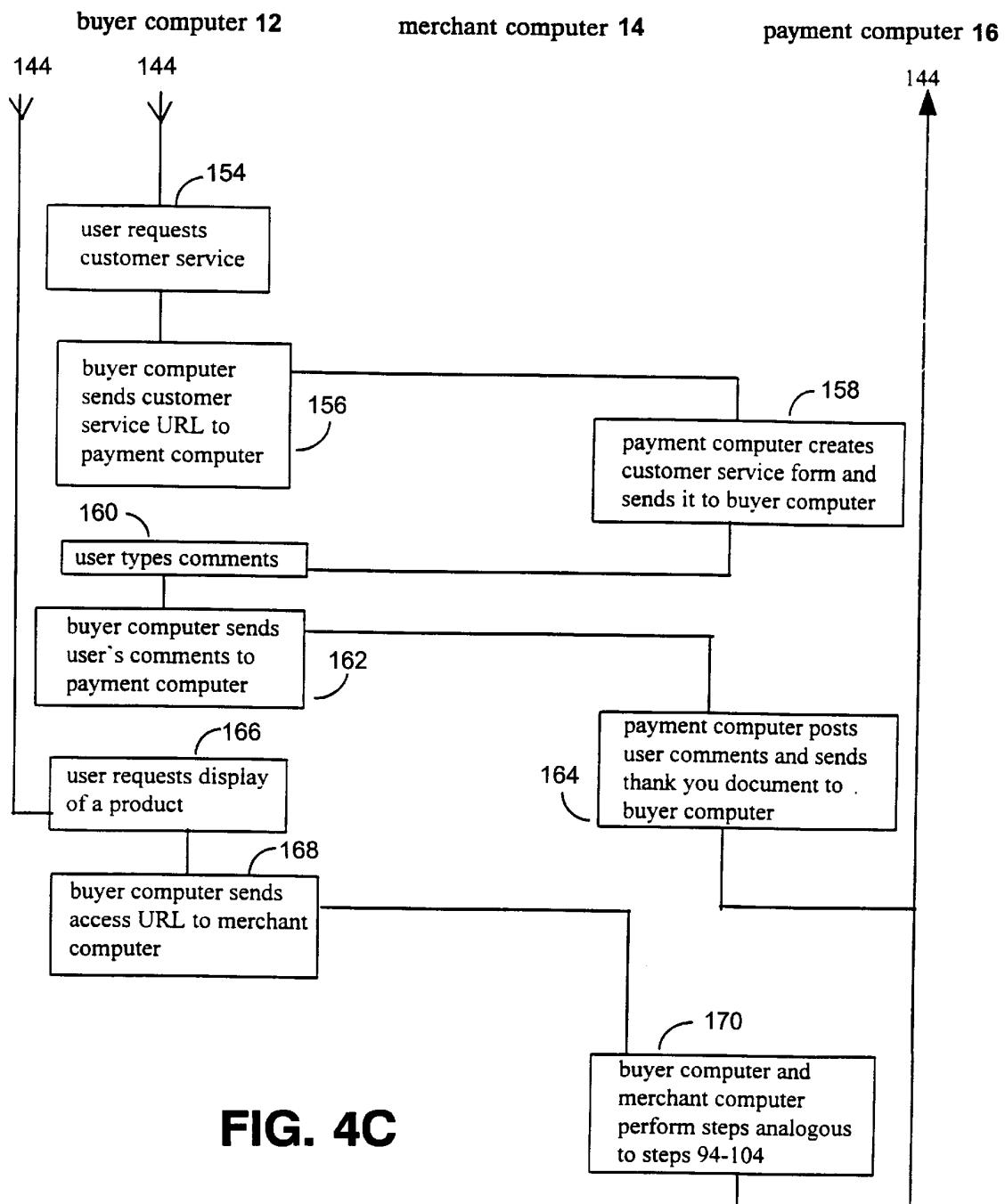
**FIG. 4B**

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**FIG. 4C**

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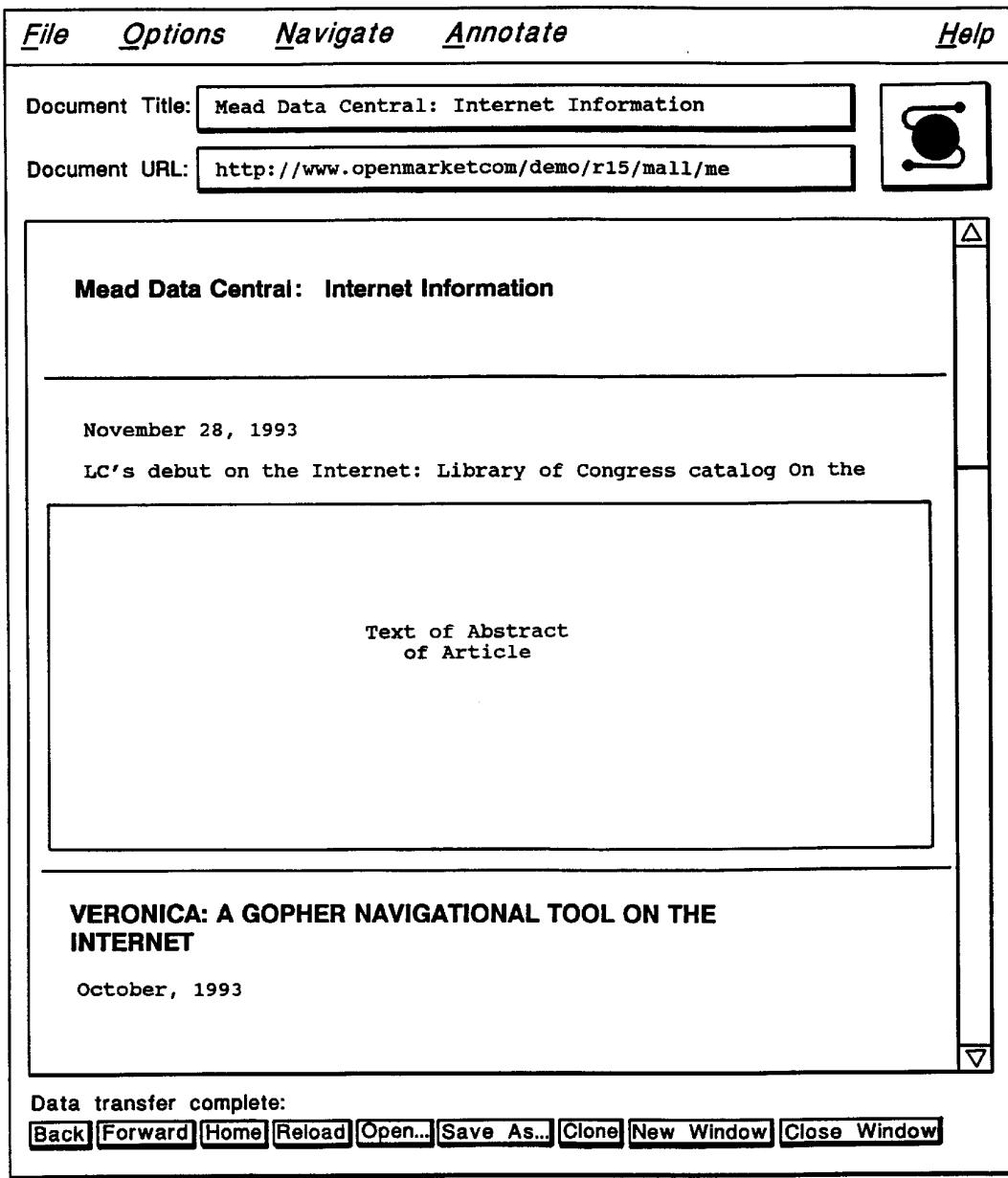


FIG. 5

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File Options Navigate Annotate Help

Document Title: 

Document URL:

Open Market Payment

You have selected an item that requires payment

Merchant:Test Merchant
Description:Mead Data Central Article
Amount:2.85(US currency)

If you have an Open Market account click on "continue" below and you will be prompted for your account name and password. If you do not have an account, you can establish one on-line and return to this page to continue your purchase.

an account on-line
 with payment transaction.

NOTE:For demonstrations use the account name **testuser@openmarket.com** with the password **testuser**.

Open Market, Inc.

Data transfer complete:

FIG. 6

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File Options Navigate Annotate Help

Document Title: Establish OpenMarket Account

Document URL: <http://payment.openmarket.com/service/destabli...>

Card Number:

Expiration Date: (format MM/YY)

Check the appropriate boxes:

I am the owner of the above credit card.

The above address is also the billing address for this credit card.

Your OpenMarket account statement is available on-line. At your option you may a copy of your statement automatically sent to your e-mail address at weekly or monthly intervals. Please choose a statement option.

Weekly statements Monthly statements No e-mail statements

Account name and password

Please choose an account name and password for your OpenMarket account. We suggest using an account name that is unique and easy to remember such as your e-mail address. Your password should be 8 characters or longer.

Account Name

Password

Data transfer complete:

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FIG. 7

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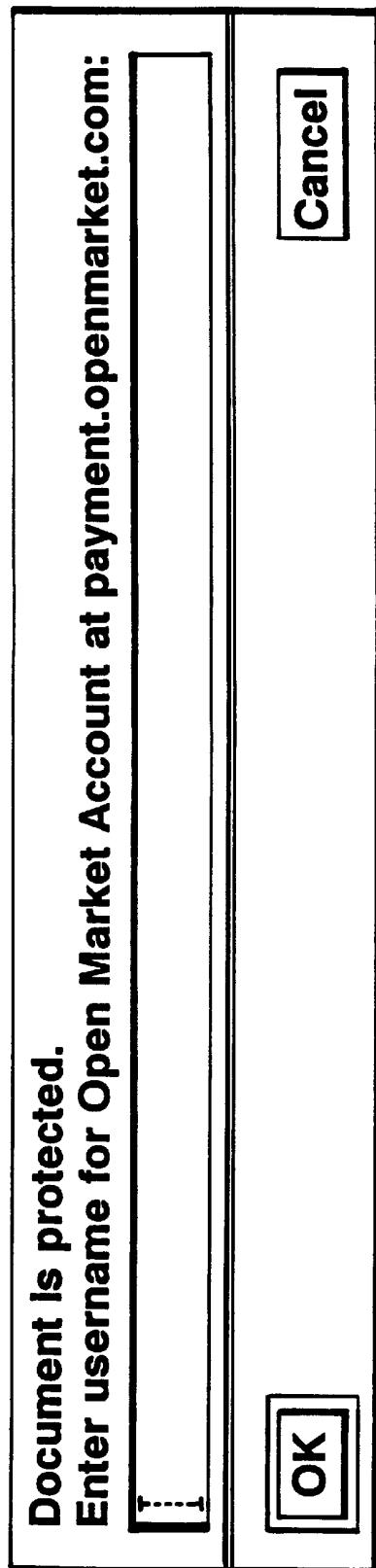


FIG. 8

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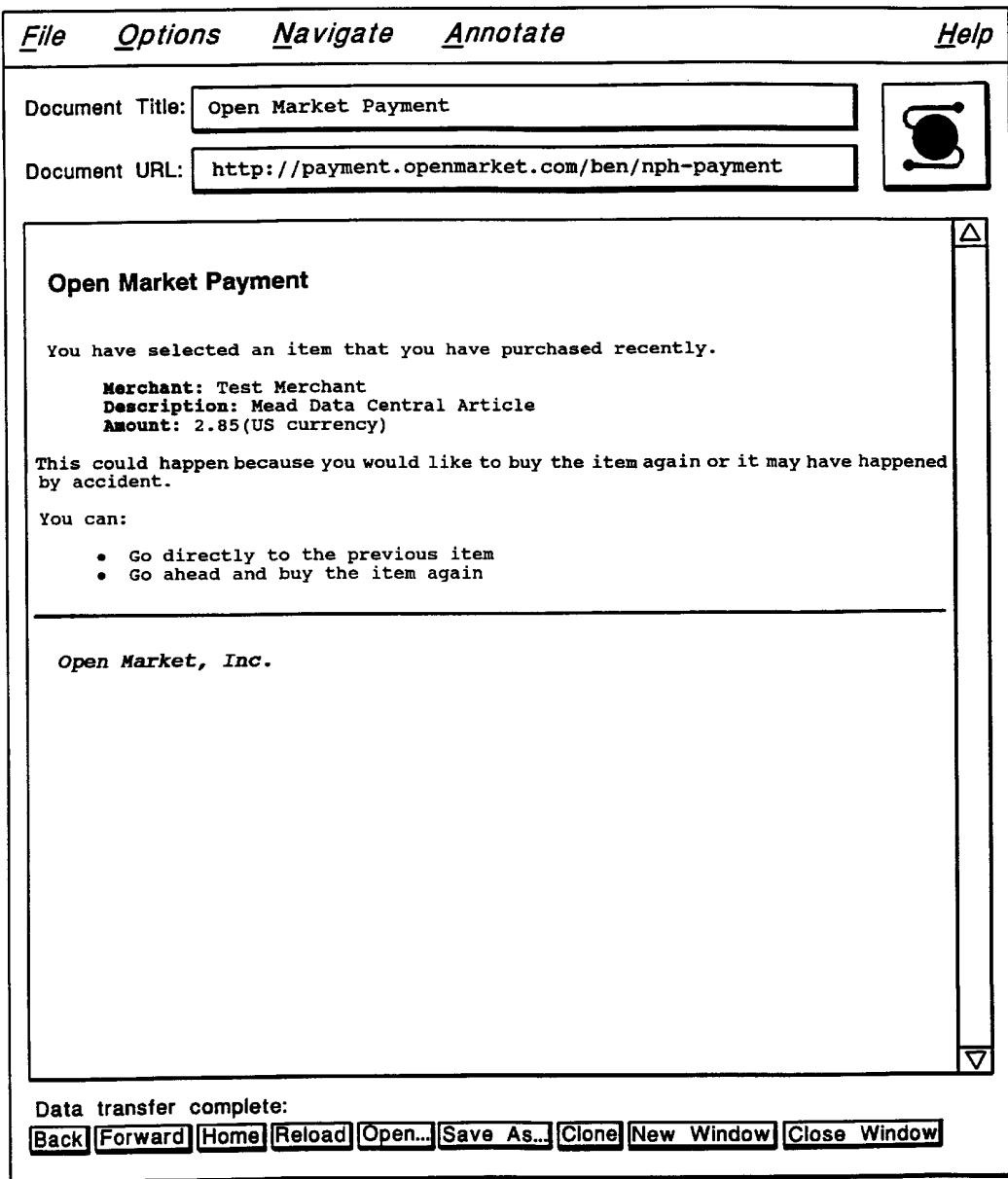


FIG. 9

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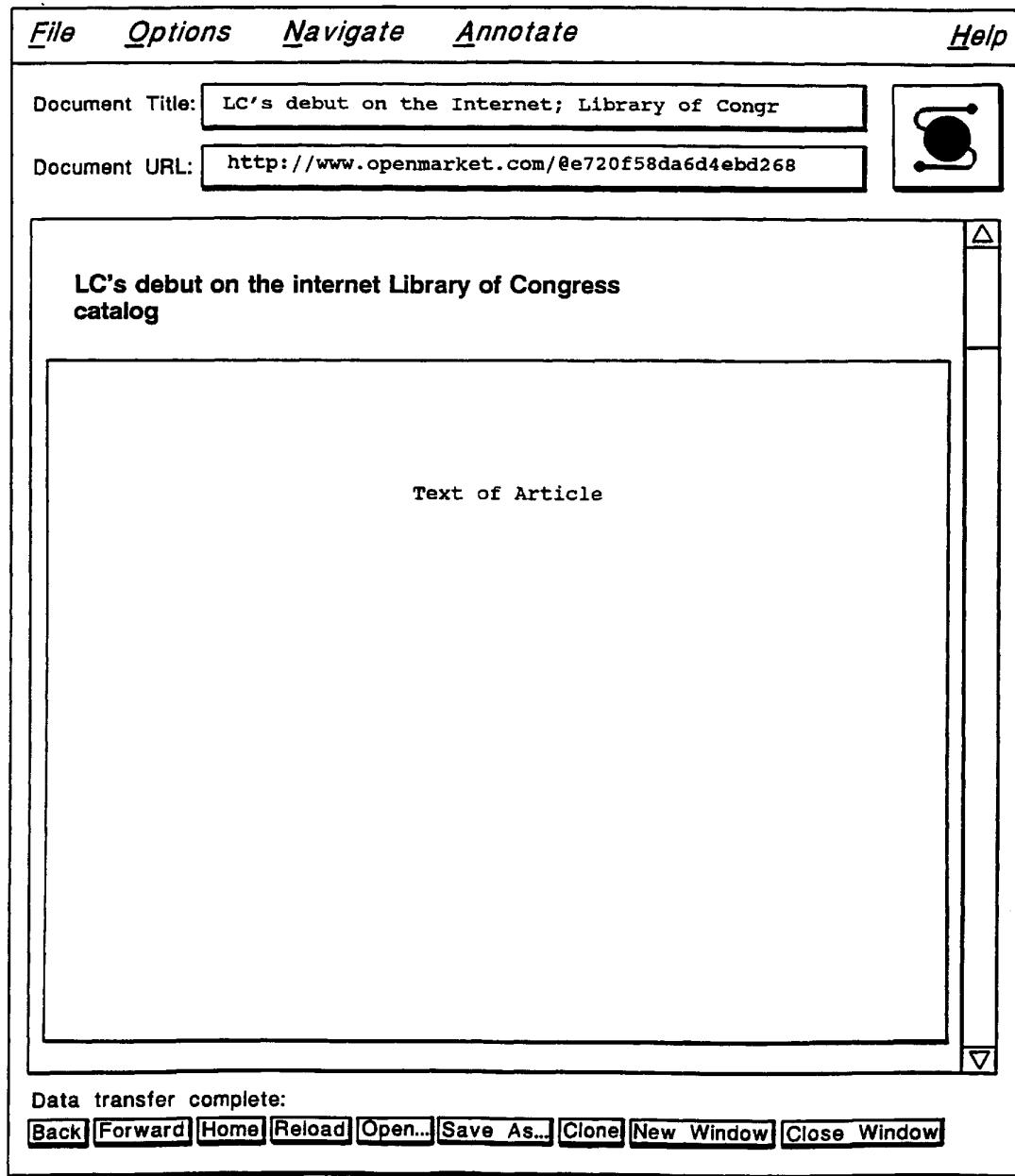


FIG. 10

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File Options Navigate Annotate Help

Document Title: Smart Statement for Test User

Document URL: <http://payment.openmarket.com/in/nph-stateme>



Information about the item.

Transactions in October 1994

Mon Oct 3 Test Merchant Dilbert subscription 20 seconds amount \$0.10
Tue Oct 4 Test Merchant Mead Data Central Article amount \$2.95
Tue Oct 4 Test Merchant Mead Data Central Article amount \$2.95
Tue Oct 4 Test Merchant Mead Data Central Article amount \$2.95
Tue Oct 4 Test Merchant N.Y. Times Article amount \$0.50
Tue Oct 4 Test Merchant Mead Data Central Article amount \$2.95
Wed Oct 5 Test Merchant Mead Data Central Article amount \$2.95
Wed Oct 5 Test Merchant Mead Data Central Article amount \$2.95
Wed Oct 5 Test Merchant Mead Data Central Article amount \$2.95
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Wed Oct 5 Test Merchant Mead Data Central Article amount \$2.95

Your total is 33.05.

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- August 1994

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FIG. 11

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File Options Navigate Annotate Help

Document Title: Smart Statement Detail

Document URL: <http://payment.openmarket.com/0c632f154cc8021>



Smart Statement Detail

This is the detailed information about a particular transaction from your Smart Statement

Transaction Information

```
url: http://www.openmarket.com/demos/aug15/mall/mead-fingerprint/mkarticle.cgo
transaction_log_id: 50254.0
currency: US
transaction_date: 781377633
initiator: 1.0
expiration: 2592000
description: Mead Data Central Article
amount: 2.95
beneficiary: 3.0
ip_address: 199.170.183.13
transaction_type.p
domain: mead.internet-1
```

Merchant Information

```
telephone: 617-621-9501
address_1: Open Market, Inc.
address_2: 215 First Street
fax: 617-621-1703
address_3: Cambridge, MA
email: testmerchant@openmarket.com
principal_name: Test Merchant
```

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FIG. 12

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File Options Navigate Annotate Help

Document Title: Smart Statement Detail

Document URL: <http://payment.openmarket.com/0c632f154cc8021>



```
url: http://www.openmarket.com/demos/aug15/mall/mead-fingerprint/mkarticle.cgi
transaction_log_id: 50254.0
currency: US
transaction_date: 781377633
initiator: 1.0
expiration: 2592000
description: Mead Data Central Article
amount: 2.95
beneficiary: 3.0
ip_address: 199.170.183.13
transaction_type.p
domain: mead.internet-1
```

Merchant Information

```
telephone: 617-621-9501
address_1: Open Market, Inc.
address_2: 215 First Street
fax: 617-621-1703
address_3: Cambridge, MA
email: testmerchant@openmarket.com
principal_name: Test Merchant
home_url:
country: US
postal_code: 02142
```

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FIG. 13

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File Options Navigate Annotate Help

Document Title:

Document URL: 

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Your E-mail address (optional):

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FIG. 14

1**NETWORK SALES SYSTEM****CROSS REFERENCE TO RELATED APPLICATION**

This is a continuation of U.S. patent application Ser. No. 08/328,133, filed Oct. 24, 1994, now U.S. Pat. No. 5,715,314.

REFERENCE TO MICROFICHE APPENDICES

Microfiche Appendices A-G are being submitted with the present application, being 4 sheets with 220 total pages.

BACKGROUND OF THE INVENTION

This invention relates to user-interactive network sales systems for implementing an open marketplace for goods or services over computer networks such as the Internet.

U.S. patent application Ser. No. 08/168,519, filed Dec. 16, 1993 by David K. Gifford and entitled "Digital Active Advertising," now abandoned, the entire disclosure of which is hereby incorporated herein in its entirety by reference, describes a network sales system that includes a plurality of buyer computers, a plurality of merchant computers, and a payment computer. A user at a buyer computer asks to have advertisements displayed, and the buyer computer requests advertisements from a merchant computer, which sends the advertisements to the buyer computer. The user then requests purchase of an advertised product, and the buyer computer sends a purchase message to the merchant computer. The merchant computer constructs a payment order that it sends to the payment computer, which authorizes the purchase and sends an authorization message to the merchant computer. When the merchant computer receives the authorization message it sends the product to the buyer computer.

The above-mentioned patent application also describes an alternative implementation of the network sales system in which, when the user requests purchase of an advertised product, the buyer computer sends a payment order directly to the payment computer, which sends an authorization message back to the buyer computer that includes an unforgeable certificate that the payment order is valid. The buyer computer then constructs a purchase message that includes the unforgeable certificate and sends it to the merchant computer. When the merchant computer receives the purchase request it sends the product to the buyer computer, based upon the pre-authorized payment order.

SUMMARY OF THE INVENTION

In one aspect, the invention provides a network-based sales system that includes at least one buyer computer for operation by a user desiring to buy a product, at least one merchant computer, and at least one payment computer. The buyer computer, the merchant computer, and the payment computer are interconnected by a computer network. The buyer computer is programmed to receive a user request for purchasing a product, and to cause a payment message to be sent to the payment computer that comprises a product identifier identifying the product. The payment computer is programmed to receive the payment message, to cause an access message to be created that comprises the product identifier and an access message authenticator based on a cryptographic key, and to cause the access message to be sent to the merchant computer. The merchant computer is programmed to receive the access message, to verify the access message authenticator to ensure that the access

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message authenticator was created using the cryptographic key, and to cause the product to be sent to the user desiring to buy the product.

The invention provides a simple design architecture for the network sales system that allows the merchant computer to respond to payment orders from the buyer computer without the merchant computer having to communicate directly with the payment computer to ensure that the user is authorized to purchase the product and without the merchant computer having to store information in a database regarding which buyers are authorized to purchase which products. Rather, when the merchant computer receives an access message from the buyer computer identifying a product to be purchased, the merchant computer need only check the access message to ensure that it was created by the payment computer (thereby establishing for the merchant computer that the buyer is authorized to purchase the product), and then the merchant computer can cause the product to be sent to the buyer computer who has been authorized to purchase the product.

In another aspect, the invention features a network-based sales system that includes at least one buyer computer for operation by a user desiring to buy products, at least one shopping cart computer, and a shopping cart database connected to the shopping cart computer. The buyer computer and the shopping cart computer are interconnected by a computer network. The buyer computer is programmed to receive a plurality of requests from a user to add a plurality of respective products to a shopping cart in the shopping cart database, and, in response to the requests to add the products, to send a plurality of respective shopping cart messages to the shopping cart computer each of which includes a product identifier identifying one of the plurality of products. The shopping cart computer is programmed to receive the plurality of shopping cart messages, to modify the shopping cart in the shopping cart database to reflect the plurality of requests to add the plurality of products to the shopping cart, and to cause a payment message associated with the shopping cart to be created. The buyer computer is programmed to receive a request from the user to purchase the plurality of products added to the shopping cart and to cause the payment message to be activated to initiate a payment transaction for the plurality of products added to the shopping cart.

In another aspect, the invention features a network-based link message system that includes at least one client computer for operation by a client user and at least one server computer for operation by a server user. The client computer and the server computer are interconnected by a computer network. The client computer is programmed to send an initial link message to the server computer. The server computer is programmed to receive the initial link message from the client computer and to create, based on information contained in the initial link message, a session link message that encodes a state of interaction between the client computer and the server computer. The session link message includes a session link authenticator, computed by a cryptographic function of the session link contents, for authenticating the session link message. The server computer is programmed to cause the session link message to be sent to the client computer. The client computer is programmed to cause the session link message to be sent to a computer in the network that is programmed to authenticate the session link message by examining the session link authenticator and that is programmed to respond to the session link message based on the state of the interaction between the client computer and the server computer.

In another aspect, the invention features a network-based sales system that includes a merchant database having a plurality of digital advertisements and a plurality of respective product fulfillment items, at least one creation computer for creating the merchant database, and at least one merchant computer for causing the digital advertisements to be transmitted to a user and for causing advertised products to be transmitted to the user. The creation computer and the merchant computer are interconnected by a computer network. The creation computer is programmed to create the merchant database, and to transmit the digital advertisements and the product fulfillment items to the merchant computer. The merchant computer is programmed to receive the digital advertisements and product fulfillment items, to receive a request for a digital advertisement from a user, to cause the digital advertisement to be sent to the user, to receive from the user an access message identifying an advertised product, and to cause the product to be sent to the user in accordance with a product fulfillment item corresponding to the product.

In another aspect, the invention features a hypertext statement system that includes a client computer for operation by a client user and one or more server computers for operation by a server user. The client computer and the server computers are interconnected by a computer network. At least one of the server computers is programmed to record purchase transaction records in a database. Each of the purchase transaction records includes a product description. The server computer is programmed to transmit a statement document that includes the purchase transaction records to the client computer. The client computer is programmed to display the product descriptions, to receive a request from the client user to display a product corresponding to a product description displayed by the client computer, and to cause a product hypertext link derived from a purchase transaction record to be activated. At least one of the server computers is programmed to respond to activation of the product hypertext link by causing the product to be sent to the client computer.

In another aspect, the invention features a network payment system that includes at least one buyer computer for operation by a user desiring to buy a product and at least one payment computer for processing payment messages from the buyer computer. The buyer computer and the payment computer are interconnected by a computer network. The buyer computer is programmed to cause a payment message to be sent to the payment computer. The payment message includes a product identifier identifying the product that the user desires to buy. The payment computer is programmed to receive the payment message, to cause an access message to be created to enable the user to access the product, and to record a purchase transaction record in the settlement database. The buyer computer is programmed to cause a request for purchase transaction records to be sent to the payment computer. The payment computer is programmed to receive the request for purchase transaction records and to cause a document derived from the purchase transaction records to be sent to the buyer computer.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram of a network sales system in accordance with the present invention.

FIG. 2 (2-A through 2-I) is a flowchart diagram illustrating the operation of a purchase transaction in the network sales system of FIG. 1.

FIG. 3 (3-A through 3-B) is a flowchart diagram illustrating the use of a shopping cart for the purchase of products in connection with the network sales system of FIG. 1.

FIG. 4 (4-A through 4-C) is a flowchart diagram illustrating the operation of a smart statement in the network sales system of FIG. 1.

FIG. 5 is a screen snapshot of an advertising document that the merchant computer sends to the buyer computer in FIG. 2.

FIG. 6 is a screen snapshot of a confirmation document that the payment computer sends to the buyer computer in FIG. 2.

FIG. 7 is a screen snapshot of a new account document that the payment computer sends to the buyer computer in FIG. 2.

FIG. 8 is a screen snapshot of an account name prompt that the buyer computer creates in FIG. 2.

FIG. 9 is a screen snapshot of a document that the payment computer sends to the buyer computer in FIG. 2 and that provides an option either to repurchase or to use a previously purchased access.

FIG. 10 is a screen snapshot of a fulfillment document that the merchant computer sends to the buyer computer in FIG. 2.

FIG. 11 is a screen snapshot of a smart statement document that the payment computer sends to the buyer computer in FIG. 4.

FIGS. 12 and 13 are screen snapshots of a transaction detail document that the payment computer sends to the buyer computer in FIG. 4.

FIG. 14 is a screen snapshot of a customer service form that the payment computer sends to the buyer computer in FIG. 4.

DETAILED DESCRIPTION

With reference to FIG. 1, a network sales system in accordance with the present invention includes a buyer computer 12 operated by a user desiring to buy a product, a merchant computer 14, which may be operated by a merchant willing to sell products to the buyer or by a manager of the network sales system, a payment computer 16 typically operated by a manager of the network sales system, and a creation computer 20 typically operated by the merchant. The buyer, merchant, payment, and creation computers are all inter-connected by a computer network 10 such as the Internet.

Creation computer 20 is programmed to build a "store" of products for the merchant. A printout of a computer program for use in creating such a "store" in accordance with the present invention is provided as Appendix F.

The products advertised by merchant computer 14 may be, for example, newspaper or newsletter articles available for purchase by buyers. Creation computer 20 creates a digital advertisement database 18 that stores advertising documents (which may for example be in the form of summaries of newspaper or newsletter articles, accompanied by prices) and product fulfillment items (which may be the products themselves if the products can be transmitted over the network, or which may be hard goods identifiers if the products are hard goods, i.e., durable products as opposed to information products). Creation computer 20 transmits contents of the advertising document database 18 to merchant computer 14 to enable the merchant computer to cause advertisements and products to be sent to buyers. Merchant computer 14 maintains advertising documents locally in advertising document database 15. In an alternative embodiment, the creation computer does not have a local digital advertisement database, but instead updates a remote

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advertising document database on a merchant computer. These updates can be accomplished using HTML forms or other remote database technologies as is understood by practitioners of the art.

Payment computer **16** has access to a settlement database **22** in which payment computer **16** can record details of purchase transactions. The products may be organized into various “domains” of products, and payment computer **16** can access settlement database **22** to record and retrieve records of purchases of products falling within the various domains. Payment computer **16** also has access to a shopping cart database **21** in which a “shopping cart” of products that a user wishes to purchase can be maintained as the user shops prior to actual purchase of the contents of the shopping cart.

With reference to FIG. 2, a purchase transaction begins when a user at buyer computer **12** requests advertisements (step **24**) and buyer computer **12** accordingly sends an advertising document URL (universal resource locator) to merchant computer **14** (step **26**). The merchant computer fetches an advertising document from the advertising document database (step **28**) and sends it to the buyer computer (step **30**). An example of an advertising document is shown in FIG. 5. Details of URLs and how they are used are found in Appendix G.

The user browses through the advertising document and eventually requests a product (step **32**). This results in the buyer computer sending payment URL A to the payment computer (step **34**). Payment URL A includes a product identifier that represents the product the user wishes to buy, a domain identifier that represents a domain of products to which the desired product belongs, a payment amount that represents the price of the product, a merchant computer identifier that represents merchant computer **14**, a merchant account identifier that represents the particular merchant account to be credited with the payment amount, a duration time that represents the length of time for which access to the product is to be granted to the user after completion of the purchase transaction, an expiration time that represents a deadline beyond which this particular payment URL cannot be used, a buyer network address, and a payment URL authenticator that is a digital signature based on a cryptographic key. The payment URL authenticator is a hash of other information in the payment URL, the hash being defined by a key shared by the merchant and the operator of the payment computer.

In an alternative embodiment, step **34** consists of the buyer computer sending a purchase product message to the merchant computer, and the merchant computer provides payment URL A to the buyer computer in response to the purchase product message. In this alternative embodiment, payment URL A contains the same contents as above. The buyer computer then sends the payment URL A it has received from the merchant computer to the payment computer.

When the payment computer receives the payment URL it verifies whether the payment URL authenticator was created from the contents of the payment URL using the cryptographic key (step **36**). If not, the payment computer sends a document to the buyer computer indicating that access to the network sales system is denied (step **38**). Otherwise, the payment computer determines whether the expiration time has past (step **40**). If it has, the payment computer sends a document to the buyer computer indicating that the time has expired (step **41**). Otherwise, the payment computer checks the buyer computer network

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address to see if it matches the one specified in the payment URL (step **42**). If it does not match, the payment computer sends a document to the buyer computer indicating that access to the network payment system is denied (step **43**). Otherwise, the payment computer sends a payment confirmation document to the buyer computer, the payment confirmation document including an “open” link and a “continue” link (step **44**).

An example of a confirmation document is shown in FIG. 10. The confirmation document asks the user to click on a “continue” button if the user already has an account with the payment computer, or to click on an “open” button if the user does not already have an account and wishes to open one.

If the user clicks on the “open” button (step **46**), the buyer computer sends payment URL C to the payment computer (step **48**), payment URL C being similar to payment URL A but also indicating that the user does not yet have an account. The payment computer creates a new account document (step **50**) and sends it to the buyer computer (step **52**). An example of a new account document is shown in FIG. 7. When the user receives the new account document he enters the new account name, an account password, a credit card number, the credit card expiration date, and security information such as the maiden name of the user’s mother (step **54**), and presses a “submit” button (not shown in FIG. 7). The buyer computer sends the new account information to the payment computer (step **56**), which enters the new account in the settlement database (step **58**).

If the user clicks on the “continue” button (step **60**), the buyer computer sends payment URL B to the payment computer (step **62**), payment URL B being similar to payment URL A but also indicating that the user already has an account. The payment computer then instructs the buyer computer to provide the account name and password (steps **64** and **66**), and the buyer computer prompts the user for this information by creating an account name prompt (example shown in FIG. 8) and a similar password prompt. The user enters the information (step **68**) and the buyer computer sends the account name and password to the payment computer (step **70**).

The payment computer verifies whether the user name and password are correct (step **72**). If they are not correct, the payment computer sends a document to the buyer computer indicating that access to the network sales system is denied (step **74**). Otherwise, the payment computer determines whether additional security is warranted, based on, e.g., whether the payment amount exceeds a threshold (step **73**). If additional security is warranted, the payment computer creates a challenge form document and sends it to the buyer computer (step **75**). The user enters the security information (step **77**), the buyer computer sends the security information to the payment computer (step **79**), and the payment computer determines whether the security information is correct (step **81**). If it is not correct, the payment computer sends a document to the buyer computer indicating that access to the network sales system is denied (step **83**).

If the security information is correct, or if additional security was not warranted, the payment computer checks the settlement database to determine whether the user has unexpired access to the domain identifier contained in the payment URL (step **82**). If so, the payment computer sends to the buyer computer a document providing an option either to repurchase or to use the previously purchased access (step **84**). An example of such a document is shown in FIG. 9. The

user can respond to the recent purchase query document by choosing to access the previously purchased document (step 85) or to go ahead and buy the currently selected product (step 86).

If the user chooses to access the previously purchased document, the buyer computer skips to step 92 (see below). If the user chooses to buy the currently selected product, the payment computer calculates an actual payment amount that may differ from the payment amount contained in the payment URL (step 87). For example, the purchase of a product in a certain domain may entitle the user to access other products in the domain for free or for a reduced price for a given period of time.

The payment computer then verifies whether the user account has sufficient funds or credit (step 76). If not, the payment computer sends a document to the buyer computer indicating that the user account has insufficient funds (step 78). Otherwise, the payment computer creates an access URL (step 80) that includes a merchant computer identifier, a domain identifier, a product identifier, an indication of the end of the duration time for which access to the product is to be granted, the buyer network address, and an access URL authenticator that is a digital signature based on a cryptographic key. The access URL authenticator is a hash of other information in the access URL, the hash being defined by a key shared by the merchant and the operator of the payment computer. The payment computer then records the product identifier, the domain, the user account, the merchant account, the end of duration time, and the actual payment amount in the settlement database (step 88).

The payment computer then sends a redirect to access URL to the buyer computer (step 90), which sends the access URL to the merchant computer (step 92). The merchant computer verifies whether the access URL authenticator was created from the contents of the access URL using the cryptographic key (step 94). If not, the merchant computer sends a document to the buyer computer indicating that access to the product is denied (step 96).

Otherwise, the merchant computer verifies whether the duration time for access to the product has expired (step 98). This is done because the buyer computer can request access to a purchased product repeatedly. If the duration time has expired, the merchant computer sends a document to the buyer computer indicating that the time has expired (step 100). Otherwise the merchant computer verifies that the buyer computer network address is the same as the buyer network address in the access URL (step 101), and if so, sends a fulfillment document to the buyer computer (step 102), which is displayed by the buyer computer (step 104). An example of a fulfillment document is shown in FIG. 10. Otherwise, the merchant computer sends a document to the buyer computer indicating that access is not allowed (step 103).

With reference now to FIG. 3, when the merchant computer sends the advertising document to the buyer computer, the user may request that a product be added to a shopping cart in the shopping cart database rather than request that the product be purchased immediately. The buyer computer sends a shopping cart URL to the payment computer (step 108), the shopping cart URL including a product identifier, a domain identifier, a payment amount, a merchant computer identifier, a merchant account identifier, a duration time, an expiration time, and a shopping cart URL authenticator that is a digital signature based on a cryptographic key. The shopping cart URL authenticator is a hash of other information in the shopping cart URL, the hash being defined by

a key shared by the merchant and the operator of the payment computer.

The payment computer verifies whether the shopping cart URL authenticator was created from the contents of the shopping cart URL using a cryptographic key (step 110). If not, the payment computer sends a document to the buyer computer indicating that access to the network sales system is denied (step 112). Otherwise, before any modification to a user's shopping cart is allowed, user authentication is performed (step 113) in a manner analogous to steps 40-81. Once the user is authenticated, the payment computer creates or updates a payment URL for the shopping cart (step 114).

The user then either requests more advertisements (step 15 24 in FIG. 2) and possibly adds another product to the shopping cart, requests display of the shopping cart (step 116), or requests purchase of the entire contents of the shopping cart (step 124). If the user requests display of the shopping cart (step 116), the buyer computer sends a fetch shopping cart request to the payment computer (step 118), and the payment computer and buyer computer (step 119) perform steps analogous to steps 64-81. The payment computer returns the contents of the shopping cart to the buyer computer (step 120), which displays the contents of the shopping cart (step 122). If the user requests that the entire contents of the shopping cart be purchased (step 124) the buyer computer causes the payment URL for the shopping cart to be activated (step 126) and the payment URL is processed in a manner analogous to the processing of payment URLs for individual products (beginning with step 30 36 in FIG. 2).

With reference now to FIG. 4, a user can request display of a "smart statement" that lists purchase transactions for a given month (step 128). When the buyer computer receives such a request, it sends a smart statement URL to the payment computer (step 130).

When the payment computer receives the smart statement URL, it verifies whether the smart statement URL authenticator was created from the contents of the smart statement URL using a cryptographic key (step 132). If not, the payment computer sends a document to the buyer computer indicating that access is denied (step 134). Otherwise, the payment computer checks to determine whether the buyer network address in the smart statement URL matches the buyer computer's actual network address (step 136). If not, the payment computer sends a document to the buyer computer indicating that access is denied (step 138). Otherwise (step 140), the payment computer and buyer computer perform a set of steps analogous to steps 64-81 in FIG. 2 (payment computer requests account name and password, user provides the requested information, and payment computer verifies the information).

In an alternative embodiment steps 132-138 are omitted.

After verification of account information is complete, the payment computer retrieves the requested settlement data from the settlement database, creates a smart statement document for the buyer, and sends the smart statement document to the buyer computer (step 142). An example of a smart statement document is shown in FIG. 11. Each purchase transaction record in the smart statement document includes the date of the transaction, the name of the merchant, an identification of the product, and the payment amount for the product. The smart statement document also includes a transaction detail URL for each purchase transaction (these URLs, or hypertext links, are discussed below and are not shown in FIG. 11). The smart statement docu-

ment also identifies previous statements that the user may wish to have displayed.

The buyer computer displays the retrieved document (step 144), and the user may request transaction details for a particular transaction listed on the smart statement (step 146). If so, the buyer computer sends a transaction detail URL (or “payment detail URL”) to the payment computer (step 148). The transaction detail URL includes a transaction identifier, a buyer network address, and a transaction detail URL authenticator. When the payment computer receives the transaction detail URL, it performs (step 150) a set of steps analogous to steps 132–140 (verification of URL authenticator, buyer network address, and account information). The payment computer then retrieves from the settlement database data corresponding to the payment transaction specified in the transaction detail URL, creates a transaction detail document, and sends it to the buyer computer (step 152).

An example of a transaction detail document is shown in FIGS. 12 and 13. The document displays a number of items of information about the transaction, including the transaction date, end of the duration time (“expiration”), a description of the product, the payment amount, the domain corresponding to the product, an identification of the merchant, and the merchant’s address.

The smart statement document and the transaction detail document both include customer service URLs (hypertext links) that allow the user to request customer service (i.e., to send comments and suggestions to the payment computer). When the user requests customer service (step 154), the buyer computer sends the customer service URL to the payment computer (step 156), which creates a customer service form and sends it to the buyer computer (step 158). An example of a customer service form is shown in FIG. 14. The user types comments into the customer service form (step 160), and the buyer computer sends the user’s comments to the payment computer (step 162). The payment computer then posts the user comments and sends a thank you document to the buyer computer (step 164).

A user may request display of a product included in the smart statement. When the user requests that the product be displayed (step 166), the buyer computer sends the access URL contained in the smart statement document to the merchant computer (step 168), and the buyer computer and merchant computer perform a set of steps analogous to steps 94–104 in FIG. 2 (authentication of access URL, verification whether duration time has expired, verification of buyer network address, and transmission of fulfillment document to buyer computer).

Whenever the present application states that one computer sends a URL to another computer, it should be understood that in preferred embodiments the URL is sent in a standard HTTP request message, unless a URL message is specified as a redirection in the present application. The request message includes components of the URL as described by the standard HTTP protocol definition. These URL components in the request message allow the server to provide a response appropriate to the URL. The term “URL” as used in the present application is an example of a “link,” which is a pointer to another document or form (including multimedia documents, hypertext documents including other links, or audio/video documents).

When the present application states that one computer sends a document to another computer, it should be understood that in preferred embodiments the document is a success HTTP response message with the document in the

body of the message. When the present application states that a server sends an account name and password request message to the client, it should be understood that in preferred embodiments the account name and password request message is an unauthorized HTTP response. A client computer sends account name and password information to a server as part of a request message with an authorization field.

The software architecture underlying the particular preferred embodiment is based upon the hypertext conventions of the World Wide Web. Appendix A describes the Hypertext Markup Language (HTML) document format used to represent digital advertisements, Appendix B describes the HTML forms fill out support in Mosaic 2.0, Appendix C is a description of the Hypertext Transfer Protocol (HTTP) between buyer and merchant computers, Appendix D describes how documents are named with Uniform Resource Locators (URLs) in the network of computers, and Appendix E describes the authentication of URLs using digital signatures.

A printout of a computer program for use in creating and operating such a “store” in accordance with the present invention is provided as Appendix F. A printout of a computer program for use in operating other aspects of the network sales system in accordance with the present invention is provided in Appendix G.

There has been described a new and useful network-based sales system. It is apparent that those skilled in the art may make numerous modifications and departures from the specific embodiments described herein without departing from the spirit and scope of the claimed invention.

What is claimed is:

1. A network-based sales system, comprising:
a merchant database comprising a plurality of digital advertisements and a plurality of respective product fulfillment items;
at least one creation computer for creating said merchant database; and
at least one merchant computer for causing said digital advertisements to be transmitted to a user and for causing advertised products to be transmitted to said user;
said creation computers, said merchant computer, and a payment computer being interconnected by a public packet switched computer network;
said creation computer being programmed to create said merchant database, and to transmit said digital advertisements and said product fulfillment items over said network to said merchant computer;
said merchant computer being programmed to receive said digital advertisements and product fulfillment items over said network, to receive over said network a request for a digital advertisement from a user, to cause said digital advertisement to be sent to said user over said network, to receive over said network from said user a product request message identifying an advertised product, to receive an access message over said network created by said payment computer, and to cause said product to be sent to said user in accordance with a product fulfillment item corresponding to said product and based upon receipt by the merchant computer of the access message.

2. A network-based sales system in accordance with claim 1, wherein each of said digital advertisements comprises an abstract of a product and a price.

3. A network-based sales system in accordance with claim 2, wherein:

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at least one of said product fulfillment items comprises a product itself; and
 said creation computer is programmed to transmit said product to said merchant computer with said digital advertisements.
 5 **4.** A network-based sales system in accordance with claim 2, wherein:
 at least one of said product fulfillment items comprises a hard good identifier; and
 said creation computer is programmed to transmit said 10 hard good identifier to said merchant computer with said digital advertisements.
 15 **5.** A method of operating a merchant computer in a network-based sales system comprising a merchant database that comprises a plurality of digital advertisements and a plurality of respective product fulfillment items, at least one creation computer for creating said merchant database, and at least one merchant computer for causing said digital advertisements to be transmitted to a user and for causing 20 advertised products to be transmitted to said user, and at least one payment computer, said creation computer, said merchant computer, and said payment computer being interconnected by a public packet switched computer network, said method comprising the steps of:
 receiving, at said merchant computer, said digital advertisements and said product fulfillment items, said digital advertisements and said product fulfillment items having been transmitted over said network to said merchant computer by said creation computer, said merchant database comprising said digital advertisements and said product fulfillment items having been 25 created by said creation computer;
 receiving over said network a request for a digital advertisement from a user;
 causing said digital advertisement to be sent to said user 30 over said network;
 receiving over said network from said user a product request message identifying an advertised product;
 receiving over said network an access message created by 35 said payment computer; and
 causing said product to be sent to said user in accordance 40 with a product fulfillment item corresponding to said product and based upon receipt by the merchant computer of the access message.
 45 **6.** A hypertext statement system, comprising:
 a client computer for operation by a client user; and
 a plurality of server computers for operation by a server user;
 said client computer and said server computers being 50 interconnected by a public packet switched computer network;
 at least one of said server computers being programmed to record information pertaining to purchase transaction records in a database, each of said purchase 55 transaction records comprising a product description, and to cause a statement document comprising said purchase transaction records to be transmitted to said client computer over said network;
 said client computer being programmed to display said 60 product descriptions, to receive a request from said client user to display a product corresponding to a product description displayed by said client computer, and to cause a product hypertext link derived from a purchase transaction record to be activated;
 65 at least one of said server computers, other than a server computer that transmitted said statement document to

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said client computer, being programmed to respond to activation of said product hypertext link by causing said product to be sent to said client computer over said network.
 5 **7.** A hypertext statement system in accordance with claim 6, wherein:
 said client computer is programmed to receive a request from said client user to display transaction details corresponding to a product description displayed by said client computer and to cause a transaction detail hypertext link corresponding to said product description to be activated; and
 at least one of said server computers is programmed to respond to activation of said transaction detail hypertext link by transmitting said transaction details to said client computer as a transaction detail document.
 15 **8.** A hypertext statement system in accordance with claim 7, wherein:
 said transaction detail document further comprises a customer service form hypertext link;
 said client computer is programmed to receive a request from said client user to display a customer service form and to cause said customer service form hypertext link to be activated; and
 at least one of said server computers is programmed to respond to activation of said customer service form hypertext link by transmitting said customer service form to said client computer.
 20 **9.** A hypertext statement system in accordance with claim 6, wherein:
 said statement document further comprises a customer service form hypertext link;
 said client computer is programmed to receive a request from said client user to display a customer service form and to cause said customer service form hypertext link to be activated; and
 at least one of said server computers is programmed to respond to activation of said customer service form hypertext link by transmitting said customer service form to said client computer.
 25 **10.** A method of operating a server computer in a hypertext statement system comprising a client computer for operation by a client user, and a plurality of server computers for operation by a server user, said client computer and said server computers being interconnected by a public packet switched computer network, said method comprising the steps of:
 recording, at one of said server computers, information pertaining to purchase transaction records in a database, each of said purchase transaction records comprising a product description; and
 causing a statement document comprising said purchase transaction records to be transmitted to said client computer over said network;
 said client computer being programmed to display said product descriptions, to receive a request from said client user to display a product corresponding to a product description displayed by said client computer, and to cause a product hypertext link derived from a purchase transaction record to be activated;
 at least one of said server computers, other than a server computer that transmitted said statement document to said client computer, being programmed to respond to activation of said product hypertext link by causing said product to be sent to said client computer over said network.
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11. A network payment system, comprising:
at least one buyer computer for operation by a user
desiring to buy a product; and
at least one payment computer for processing payment
messages from said buyer computer; 5
said buyer computer, said payment computer, and a merchant
computer being interconnected by a public packet
switched computer network;
said buyer computer being programmed to cause a payment
message to be sent to said payment computer over
said network; 10
said payment computer being programmed to receive said
payment message, to cause an access message to be
created for transmission over said network to said
merchant computer to enable said user to access said
product upon verification by said merchant computer
that said access message was created by said payment
computer, and to record information pertaining to a
purchase transaction record in said settlement database; 15
said buyer computer being programmed to cause a request
for a purchase transaction record to be sent to said
payment computer over said network; and
said payment computer being programmed to receive said
request for said purchase transaction record and to
cause a document derived from said purchase transaction
record to be sent to said buyer computer over said
network. 25

12. The network payment system of claim **11** wherein the payment message comprises a product identifier identifying the product that the user desires to buy. 30

13. A method of operating a payment computer in a network payment system comprising at least one buyer computer for operation by a user desiring to buy a product, and at least one payment computer for processing payment messages from said buyer computer, and at least one merchant computer, said buyer computer, said payment computer, and said merchant computer being interconnected by a public packet switched computer network, said method comprising the steps of: 35

receiving, at said payment computer, a payment message that said buyer computer has caused to be sent to said payment computer over said network;
causing an access message to be created for transmission to a merchant computer over said network to enable said user to access said product upon verification by said merchant computer that said access message was created by said payment computer; 45
recording information pertaining to a purchase transaction record in said settlement database; 50
receiving over said network a request for a purchase transaction record that said buyer computer has caused to be sent to said payment computer; and
causing a document derived from said purchase transaction record to be sent to said buyer computer over said network. 55

14. The method of claim **13** wherein the payment message comprises a product identifier identifying the product that the user desires to buy. 60

15. A hypertext statement system, comprising:
a client computer for operation by a client user; and
one or more server computers for operation by a server user;
the client computer and the server computers being interconnected by a public packet switched computer network; 65

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at least one of the server computers being programmed to record information pertaining to purchase transaction records in a database, and to transmit a statement document comprising the purchase transaction records to the client computer over the network;

the client computer being programmed to display the statement document to receive a request from the client user to display transaction details corresponding to a portion of the statement document displayed by the client computer, and to cause a transaction detail hypertext link corresponding to the portion of the statement document to be activated;

at least one of the server computers being programmed to respond to activation of the transaction detail hypertext link by transmitting the transaction details to the client computer over the network as a transaction detail document.

16. A method of operating a server computer in a hypertext statement system comprising a client computer for operation by a client user, and one or more server computers for operation by a server user, the client computer and the server computers being interconnected by a public packet switched computer network, the method comprising the steps of:

recording, at one of the server computers, information pertaining to purchase transaction records in a database; and

transmitting a statement document comprising the purchase transaction records to the client computer over the network;

the client computer being programmed to display the statement document, to receive a request from the client user to display transaction details corresponding to a portion of the statement document displayed by the client computer, and to cause a transaction detail hypertext link corresponding to the portion of the statement document to be activated;

at least one of the server computers being programmed to respond to activation of the transaction detail hypertext link by transmitting the transaction details to the client computer over the network as a transaction detail document.

17. A network-based sales system, comprising:

at least one buyer computer for operation by a user desiring to buy products;

at least one shopping cart computer; and

a shopping cart database connected to the shopping cart computer;

the buyer computer and the shopping cart computer being interconnected by a public packet switched computer network;

the buyer computer being programmed to receive a plurality of requests from a user to add a plurality of respective products to a shopping cart in the shopping cart database, and, in response to the requests to add the products, to send a plurality of respective shopping cart messages over the network to the shopping cart computer each of which comprises a product identifier identifying one of the plurality of products and at least one of which comprises a universal resource locator;

the shopping cart computer being programmed to receive the plurality of shopping cart messages, to modify the shopping cart in the shopping cart database to reflect the plurality of requests to add the plurality of products to the shopping cart, and to cause a payment message

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associated with the shopping cart to be created, the payment message comprising a universal resource locator; and
 the buyer computer being programmed to receive a request from the user to purchase the plurality of products added to the shopping cart and to cause the payment message to be activated to initiate a payment transaction for the plurality of products added to the shopping cart;
 the shopping cart being a stored representation of a collection of products, the shopping cart database being a database of stored representations of collections of products, and the shopping cart computer being a computer that modifies the stored representations of collections of products in the database.

18. A method of operating a shopping cart computer in a public packet switched computer network comprising at least one buyer computer for operation by a user desiring to buy products, at least one shopping cart computer, and a shopping cart database connected to the shopping cart computer, the method comprising the steps of:

receiving, at the shopping cart computer, a plurality of shopping cart messages sent over the network to the shopping cart computer by the buyer computer in response to receipt of a plurality of requests from a user to add a plurality of respective products to a shopping cart in the shopping cart database, each of the shopping cart messages comprising a product identifier identifying one of the plurality of products and at least one of which comprises a universal resource locator;

modifying the shopping cart in the shopping cart database to reflect the plurality of requests to add the plurality of products to the shopping cart; and

causing a payment message associated with the shopping cart to be created, the payment message comprising a universal resource locator;

the buyer computer being programmed to receive a request from the user to purchase the plurality of products added to the shopping cart and to cause the payment message to be activated to initiate a payment transaction for the plurality of products added to the shopping cart;

the shopping cart being a stored representation of a collection of products, the shopping cart database being a database of stored representations of collections of products, and the shopping cart computer being a computer that modifies the stored representations of collections of products in the database.

19. A network-based sales system, comprising:

at least one buyer computer for operation by a user desiring to buy a product;

at least one merchant computer; and

at least one payment computer;

the buyer computer, the merchant computer, and the payment computer being interconnected by a computer network;

the buyer computer being programmed to receive a user request for purchasing a product, and to cause a payment message to be sent to the payment computer that comprises a product identifier identifying the product;

the payment computer being programmed to receive the payment message, to cause an access message to be created that comprises a product identifier identifying the product and an access message authenticator based on a cryptographic key, and to cause the access message to be sent to the merchant computer; and

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the merchant computer being programmed to receive the access message, to cause the access message authenticator to be verified to ensure that the access message authenticator was created using the cryptographic key, and to cause the product to be received by the user desiring to buy the product.

20. A network-based sales system in accordance with claim **19** wherein the buyer computer is programmed to cause the payment message to be sent to the payment computer by sending a purchase product message to the merchant computer, the merchant computer being programmed to receive the purchase product message, and in response thereto, to send the payment message to the payment computer.

21. A network-based sales system in accordance with claim **19** wherein the merchant computer is programmed itself to verify the access message authenticator.

22. A network-based sales system in accordance with claim **19** wherein the merchant computer is programmed to cause every access message authenticator received by the merchant computer to be verified.

23. A network-based sales system in accordance with claim **19**, wherein the payment message comprises a payment amount.

24. A network-based sales system in accordance with claim **19**, wherein the payment computer is programmed to record the product identifier and the payment amount.

25. A network-based sales system in accordance with claim **24**, wherein the product identifier and the payment amount are recorded in a settlement database.

26. A network-based sales system in accordance with claim **19**, wherein the payment message comprises a merchant computer identifier.

27. A network-based sales system in accordance with claim **19**, wherein the payment message comprises a payment message authenticator based on a cryptographic key.

28. A network-based sales system in accordance with claim **27**, wherein the payment computer is programmed to verify the payment message authenticator to ensure that the payment message authenticator was created using the cryptographic key.

29. A network-based sales system in accordance with claim **19** wherein the computer network is a public packet-switched communications network.

30. A method of operating a payment computer in a computer network comprising at least one buyer computer for operation by a user desiring to buy a product, at least one merchant computer, and at least one payment computer, the method comprising the steps of:

receiving, at the payment computer, a payment message that the buyer computer has caused to be sent to the payment computer in response to a user request for purchasing a product, the payment message comprising a product identifier identifying the product;

causing an access message to be created that comprises a product identifier identifying the product and an access message authenticator based on a cryptographic key; and

causing the access message to be sent to the merchant computer, the merchant computer being programmed to receive the access message, to cause the access message authenticator to be verified to ensure that the access message authenticator was created using the cryptographic key, and to cause the product to be received by the user desiring to buy the product.

31. A network-based sales system, comprising:
 at least one buyer computer for operation by a user desiring to buy a product;

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at least one merchant computer; and
at least one payment computer;
the buyer computer, the merchant computer, and the
payment computer being interconnected by a public
packet switched computer network; 5
the buyer computer being programmed to receive a
request from a user for purchasing a product, and to
cause a payment message to be sent over the network
to the payment computer; 10
the payment computer being programmed to receive the
payment message, and, if purchase of the product by
the user has not been previously recorded in a settle-
ment database, to cause the user to be charged for the
product and to create a new record in the settlement
database reflecting purchase of the product by the user,
to cause an access message to be created, and to cause
the access message to be sent over the network to the
merchant computer; and 15
the merchant computer being programmed to receive the
access message and to cause the user to receive the
product.

32. The network-based sales system of claim **31** wherein:
the payment computer is programmed to cause the access
message to be created using a cryptographic key; and 25
at least one of the computers is programmed to use the
access message in a cryptographic process to ensure
that the user has paid for the product.

33. A method of operating a payment computer in a public
packet switched computer network comprising at least one
buyer computer for operation by a user desiring to buy a
product, at least one merchant computer, and at least one
payment computer, the method comprising the steps of: 30

receiving, at the payment computer, a payment message
that the buyer computer has caused to be sent over the
network to the payment computer in response to a
request from a user for purchasing a product, and, if
purchase of the product by the user has not been 35
previously recorded in a settlement database, causing
the user to be charged for the product and creating a
new record in the settlement database reflecting pur-
chase of the product by the user;

causing an access message to be created; and
causing the access message to be sent over the network to 45
the merchant computer, the merchant computer being
programmed to receive the access message and to cause
the user to receive the product.

34. The method of claim **33** wherein at least one of the
computers is programmed to use the access message in a 50
cryptographic process to ensure that the user has paid for the
product.

35. A network-based sales system, comprising:
at least one buyer computer for operation by a user
desiring to buy products; 55
at least one shopping cart computer; and
a shopping cart database connected to the shopping cart
computer;
the buyer computer and the shopping cart computer being
interconnected by a public packet switched computer
network; 60
the buyer computer being programmed to receive a plu-
rality of requests from a user to add a plurality of
respective products to a shopping cart in the shopping
cart database, and, in response to the requests to add the
products, to send a plurality of respective shopping cart

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messages over the network to the shopping cart com-
puter each of which comprises a product identifier
identifying one of the plurality of products;
the shopping cart computer being programmed to receive
the plurality of shopping cart messages, and to modify
the shopping cart in the shopping cart database to
reflect the plurality of requests to add the plurality of
products to the shopping cart; and
the buyer computer being programmed to receive a
request from the user to purchase the plurality of
products added to the shopping cart and to cause a
payment message to be activated to initiate a payment
transaction for the plurality of products added to the
shopping cart; 10
the shopping cart being a stored representation of a
collection of products, the shopping cart database being
a database of stored representations of collections of
products, and the shopping cart computer being a
computer that modifies the stored representations of
collections of products in the database.

36. A method of operating a shopping cart computer in a
public packet switched computer network comprising at
least one buyer computer for operation by a user desiring to
buy products, at least one shopping cart computer, and a
shopping cart database connected to the shopping cart
computer, the method comprising the steps of:

receiving, at the shopping cart computer, a plurality of
shopping cart messages sent over the network to the
shopping cart computer by the buyer computer in
response to receipt of a plurality of requests from a user
to add a plurality of respective products to a shopping
cart in the shopping cart database, each of the shopping
cart messages comprising a product identifier identify-
ing one of the plurality of products; and
modifying the shopping cart in the shopping cart database
to reflect the plurality of requests to add the plurality of
products to the shopping cart;

the buyer computer being programmed to receive a
request from the user to purchase the plurality of
products added to the shopping cart and to cause a
payment message to be activated to initiate a payment
transaction for the plurality of products added to the
shopping cart;

the shopping cart being a stored representation of a
collection of products, the shopping cart database being
a database of stored representations of collections of
products, and the shopping cart computer being a
computer that modifies the stored representations of
collections of products in the database.

37. A network-based sales system, comprising:
a merchant database comprising a plurality of digital
advertisements and a plurality of respective product
fulfillment items;
at least one creation computer for creating the merchant
database; and
at least one merchant computer for causing the digital
advertisements to be transmitted to a user and for
causing advertised products to be transmitted to the
user;
the creation computer and the merchant computer being
interconnected by a public packet switched computer
network;
the creation computer being programmed to create the
merchant database, and to transmit the digital adver-
tisements and the product fulfillment items over the
network to the merchant computer;

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the merchant computer being programmed to receive the digital advertisements and product fulfillment items over the network, to receive over the network a request for a digital advertisement from a user, to cause the digital advertisement to be sent to the user over the network, to receive over the network from the user a product request message identifying an advertised product, and to cause the product to be sent to the user in accordance with a product fulfillment item corresponding to the product;

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at least a portion of the digital advertisements transmitted by the creation computer to the merchant computer over the network being authenticated by at least one digital signature.

38. A method of operating a merchant computer in a network-based sales system comprising a merchant database that comprises a plurality of digital advertisements and a plurality of respective product fulfillment items, at least one creation computer for creating the merchant database, and at least one merchant computer for causing the digital advertisements to be transmitted to a user and for causing advertised products to be transmitted to the user, the creation computer and the merchant computer being interconnected by a public packet switched computer network, the method comprising the steps of:

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receiving, at the merchant computer, the digital advertisements and the product fulfillment items, the digital advertisements and the product fulfillment items having been transmitted over the network to the merchant computer by the creation computer, the merchant database comprising the digital advertisements and the product fulfillment items having been created by the creation computer;

receiving over the network a request for a digital advertisement from a user;

causing the digital advertisement to be sent to the user over the network;

receiving over the network from the user a product request message identifying an advertised product; and causing the product to be sent to the user in accordance with a product fulfillment item corresponding to the product;

at least a portion of the digital advertisements transmitted by the creation computer to the merchant computer over the network being authenticated by at least one digital signature.

* * * * *

(12) EX PARTE REEXAMINATION CERTIFICATE (5845th)
United States Patent
Payne et al.

(10) Number: **US 5,909,492 C1**
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(54) **NETWORK SALES SYSTEM**

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705/39; 705/40; 705/44

(58) **Field of Classification Search** None
See application file for complete search history.

(56) **References Cited****U.S. PATENT DOCUMENTS**

4,484,304 A	11/1984	Anderson et al.
4,566,078 A	1/1986	Crabtree
4,941,089 A	7/1990	Fischer
5,035,515 A	7/1991	Crossman et al.
5,204,947 A	4/1993	Bernstein et al.

5,297,249 A 3/1994 Bernstein et al.
5,309,437 A 5/1994 Perlman et al.

(Continued)

FOREIGN PATENT DOCUMENTS

EP	0456920	1/1991
EP	0645688	3/1995
JP	3278230	12/1991
JP	05-158963	6/1993
JP	5274275	10/1993
JP	6162059	6/1994
JP	6291776	10/1994
WO	WO 93/10503	5/1993
WO	WO 94/03859	2/1994
WO	WO 95/16971	6/1995

OTHER PUBLICATIONS

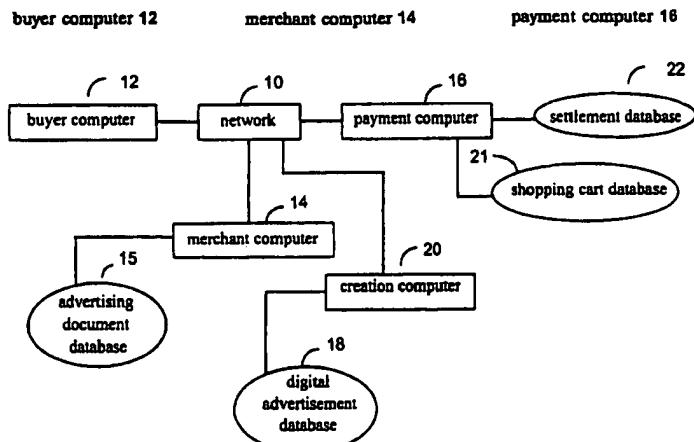
Soverain Software LLC v. Amazon.Com, Inc. and The Gap, Inc., Form of Stipulated Request for Final Dismissals of the Actions, filed Aug. 30, 2005.

(Continued)

Primary Examiner—Michael O'Neill

(57) **ABSTRACT**

A network-based sales system includes at least one buyer computer for operation by a user desiring to buy a product, at least one merchant computer, and at least one payment computer. The buyer computer, the merchant computer, and the payment computer are interconnected by a computer network. The buyer computer is programmed to receive a user request for purchasing a product, and to cause a payment message to be sent to the payment computer that comprises a product identifier identifying the product. The payment computer is programmed to receive the payment message, to cause an access message to be created that comprises the product identifier and an access message authenticator based on a cryptographic key, and to cause the access message to be sent to the merchant computer. The merchant computer is programmed to receive the access message, to verify the access message authenticator to ensure that the access message authenticator was created using the cryptographic key, and to cause the product to be sent to the user desiring to buy the product.



US 5,909,492 C1

Page 2

U.S. PATENT DOCUMENTS

5,325,362 A	6/1994	Aziz
5,347,632 A	9/1994	Filepp et al. 395/200
5,353,283 A	10/1994	Tsuchiya
5,388,257 A	2/1995	Bauer
5,457,738 A	10/1995	Sylvan
5,475,585 A	12/1995	Bush
5,483,652 A	1/1996	Sudama et al.
5,491,820 A	2/1996	Belove et al.
5,530,852 A	6/1996	Meske, Jr. et al.
5,544,320 A	8/1996	Konrad
5,544,322 A	8/1996	Cheng et al.
5,550,984 A	8/1996	Gelb
5,560,008 A	9/1996	Johnson et al.
5,577,209 A	11/1996	Boyle et al.
5,583,996 A	12/1996	Tsuchiya
5,592,378 A	1/1997	Cameron et al. 395/227
5,619,648 A	4/1997	Canale et al.
5,623,656 A	4/1997	Lyons
5,664,110 A	9/1997	Green et al.
5,664,111 A	9/1997	Nahan et al.
5,675,507 A	10/1997	Bobo, II
5,708,780 A	1/1998	Levergood et al.
5,710,884 A	1/1998	Dedrick
5,715,314 A *	2/1998	Payne et al. 705/78
5,724,521 A	3/1998	Dedrick
5,727,164 A	3/1998	Kaye et al.
5,732,219 A	3/1998	Blumer et al.
5,734,719 A	3/1998	Tsevdos et al.
5,761,662 A	6/1998	Dasan
5,768,142 A	6/1998	Jacobs
5,768,521 A	6/1998	Dedrick
5,774,670 A	6/1998	Montulli
5,784,565 A	7/1998	Lewine
5,790,793 A	8/1998	Higley
5,806,077 A	9/1998	Wecker
5,812,776 A	9/1998	Gifford
5,826,241 A	10/1998	Stein et al.
5,826,242 A	10/1998	Montulli
5,848,399 A	12/1998	Burke 705/27
5,848,413 A	12/1998	Wolff
5,870,552 A	2/1999	Dozier et al.
5,895,454 A	4/1999	Harrington
5,897,622 A	4/1999	Blinn et al.
5,920,847 A	7/1999	Kolling et al.
5,982,891 A	11/1999	Ginter et al.
6,006,199 A	12/1999	Berlin et al.
6,023,683 A	2/2000	Johnson et al.
6,041,316 A	3/2000	Allen
6,049,785 A	4/2000	Gifford
6,134,592 A	10/2000	Montulli
6,195,649 B1	2/2001	Gifford
6,199,051 B1	3/2001	Gifford
6,205,437 B1	3/2001	Gifford
6,449,599 B1	9/2002	Payne et al.
6,708,157 B2	3/2004	Stefik et al.

OTHER PUBLICATIONS

Soverain Software LLC v. Amazon.Com, Inc. and The Gap, Inc., Order of Dismissal with Prejudice filed Aug. 31, 2005.
 Bina et al., "Secure Access to Data Over the Internet", Natl. Center for Supercomputing Appls., Univ. Of Illinois, Champaign, Illinois, pp. 99-102.

Farber, David, "Interesting-People Message—RSA/NCSA/EIT Announcement on Secure Mosaic" Palo Alto, California, Apr. 12, 1994, 4 pages.

Kent, Stephen T., "Internet Privacy Enhanced Mail", 8070 Communications of the ACM 36, New York, Aug. 1993, pp. 48-60.

Kohn, Dan, "Prior Art on Open Market Patents", e-mail message dated Mar. 9, 1998, 1 page.

Lewis, Peter H., "Attention Shoppers: Internet is Open", 2 pages.

Medvinsky et al., NetCash: A Design for Practical Electronic Currency on the Internet, Information Sciences Institute, University of Southern California, 1993, pp. 102-106.

Schaefer et al., "Networked Information Discovery and Retrieval Tools: Security Capabilities and Needs", The MITRE Corporation, 1994, pp. 145-153.

European Search Report dated Jun. 19, 2006.

Ohmori et al., "An On-line Shopping System Protecting User's Privacy" Information Communication Laboratory of Matsushita Electric Industrial Co., Ltd., pp. 25-32. Note: 12 Pages of Translation Attached.

Motoda, Toshihiro et al., *An Experimental Verification of Relational Database Access Over WWW*, NTT Software Laboratories, Nippon Telegraph and Telephone Corporation, 1995, pp. 47-54 (with English Translation—8 pages).

Gifford, Stewart, Payne, Treese, "Payment Switches for Open Networks," presented at 40th IEEE, IEEE, COMP-CON '95, Mar. 5-9, 1995, San Francisco, CA.

Defendant Amazon.com Inc.'s Unopposed Motion for Leave to Amend its Answer to Include Allegations Regarding Stuff.com.

Declaration of James E. Geringer in Support of Amazon.com, Inc's Motion for Leave to Amend its Answer and Counterclaims to Add Stuff.com.

Exhibit 1 of Geringer Declaration: Excerpts of Deposition of Michael Kuniavsky.

Exhibit 2 of Geringer Declaration: E-mail from Brooks Cutter to Mike Kuniavsky (Jun. 14, 1994).

Exhibit 3 of Geringer Declaration: Excerpts of Deposition of Richard Boake.

Exhibit 5 of Geringer Declaration: Excerpts of Deposition of Andrew Payne.

Exhibit 6 of Geringer Declaration: E-mail from Andrew Payne to Winfield Treese, et al. (Jun. 15, 1994).

Exhibit 7 of Geringer Declaration: Excerpts of Deposition of Winfield Treese.

Exhibit 8 of Geringer Declaration: Amazon.com, Inc.'s [Proposed] fourth Amended Answer, Affirmative Defenses, and Counterclaims to Soverain Software, LLC's Complaint (Redlined Version).

Amazon.com's Motion for Partial Summary Judgment that '314 claims 34-49, '492 claims 17-18 and 36-36, and '780 claims 1, 4, and 22-24 are invalid under 35 U.S.C. 102.

Amazon.com's Motion for Partial Summary Judgment that claims are indefinite under 35 U.S.C. 112.

Berners-Lee, T., et al., <http://www.ietf.org/rfc/rfc1738.txt?numbers=1738>.

Changes to wwwStat at <http://ftp.ics.uci.edu/pub/websoft/wwwstat/Changes>.

Berners-Lee, T., RFC 1630: Universal Resource Identifiers in WWW: A Unifying Syntax for the Expression of Names and Addresses of Objects on the Network as used in the World-Wide Web.

Berners-Lee, T., et al. RDC 1738: Uniform Resource Locators.

Fielding, R., RFC 1808: Relative Uniform Resource Locators.

Berners-Lee, T., et al. RFC 1945: Hypertext Transfer Protocol—HTTP/1.0.

US 5,909,492 C1

Page 3

- Fielding, R., et al. RFC 2608: Hypertext Transfer Protocol—HTTP/1.1.
- Fielding, R., et al. RFC 2616: Hypertext Transfer Protocol—HTTP/1.1.
- Berners-Lee, T. "draft-ietf-iiir-http-00.txt" (Nov. 5, 1993). wwwStat Readme file at <http://ftp.ics.uci.edu/pub/websoft/wwwstate/README>.
- NCSA HTTPd release notes at <http://hoohoo.ncsa.uiuc.edu/docs/Upgrade.html> (last updated Aug. 1, 1995).
- Crocker, Glenn, "web2mush: Serving Interactive Resources to the Web," Electronic Proc. of the 2nd World Wide Web Conf. '94: Mosaic and the Web!, Developers Day, (Oct. 20, 1994).
- Dukach, Seymour; Prototype Implementation of the SNPP Protocol; allspic.ics.mit.edu; 1992.
- Batelaan; Butler; Chan; Evenchick; Hughes; Jen; Jeng; Millett; Riccio; Skoudis; Starace; Stoddard; "An Internet Billing Serving Prototype Design", Carnegie Mellon.
- O'Mahony, Donal, Michael Peirce, & Hitesh Tewari, Electronic Payment Systems, Artech House, Inc., pp. 145–155, Jan. 1997.
- Maren, Michael, "The Age of E-Mail," Home Office Computing, vol. 11, No. 12, p. 63(5).
- Foster, David & Stuart Finn, "Insurers Can Benefit From E-Mail Networks". National Underwriter Property & Casualty–Risk & Benefits Management, No. 9, p. 46(2), Mar. 4.
- Ferrarini, E., "Flight of Fancy: Goodbye Travel Agent", Business Computer Systems, vol. 2, No. 11, pp. 39–40, Nov. 1993.
- Trip et al., "Cookies" (client-side persistent information) and their use, Netscape Technical Note 20019, Netscape Communications Corp., Oct. 1995.
- Archive of WWOrder mailing list (Jun. 18, 1994–Jun. 13, 1994).
- Leggett, John et al., "Hyperform: Using Extensibility to Develop Dynamic, Open and Distributed Hypertext Systems" (1992).
- Bieber, Michael, "Issues in Modeling a 'Dynamic' Hypertext Interface for Non-Hypertext Systems" (1991).
- Nielson, Jacob, *Hypertext & Hypermedia* (1990).
- "Announcing: Internet Shopkeeper" (Aug. 2, 1994) posting on comp.infosystems.www and misc.forsale.
- Eaasy Sabre User's Guide and Eaasy Sabre Reference Guide.
- Compuserve Manual (undated).
- The Major BBS: Collection of information and Advertisements concerning The Major BBS (Fall 1993).
- Fielding, Roy, et al., "Principled Design of the Modern Web Architecture" *ACM Transactions on Internet Technology* 2, 2 pp. 115–150 (May 2002).
- Smithson, Brian, and Singer, Barbara, An Information Clearinghouse Server for Industry Consortia, 2nd Int'l Conf. On the World Wide Web, Chicago, Ill., Oct. 1994.
- Soverain's ANSWER to Counterclaim (Amazon's Third Amended Counterclaim) by Soverain Software LLC.(Seraphine, Jennifer) (Entered: Mar. 17, 2005).
- NOTICE by Amazon.com re: Answer to Amended Complaint, Counterclaim Of Rejection Of Claims 1–45 Of U.S. Patent No. 4,708,780 (Entered: Mar. 25, 2005).
- MOTION to Stay [Renewed] by Amazon.com. (Entered: Apr. 5, 2005).
- Soverain's Opposition to Amazon's Renewed Motion to Stay.
- Amazon.Com, Inc.'s Reply in Support of Renewed Motion to Stay.
- Deposition of Glenn Arthur Hauman with Exhibits (Oct. 28, 2004).
- Deposition of Glenn Crocker with Exhibits (Mar. 10, 2005).
- Deposition of Glenn M. Trewitt with Exhibits (Jan. 25, 2005).
- Deposition of Guy Henry Timothy Haskin with Exhibits (Mar. 18, 2005).
- Deposition of Joshua Smith with Exhibits (Mar. 2, 2005).
- Deposition of Kevin Ming-Wei Kadaja Hughes with Exhibits (Mar. 21, 2005).
- Deposition of Michael Kuniavsky with Exhibits (Feb. 22, 2005).
- Deposition of Michael Lazzaro with Exhibits (Mar. 9, 2005).
- Deposition of Phillip Hallam-Baker with Exhibits (Mar. 11, 2005).
- Deposition of Robert Allen Olson with Exhibits (Mar. 3, 2005).
- Deposition of Thomas Soulainville with Exhibits (Mar. 14, 2005).
- Expert Report of Alexander B. Travor (Apr. 10, 2005).
- Reply to Response to Motion re: Motion to Stay [Renewed] (*Surreply in Opposition to Amazon's Renewed Motion to Stay*) filed by Soverain Software LLC.
- Soverain's Reply to Amazon's Third Amended Counter-claims, dated Mar. 17, 2005.
- Amazon.com's Renewed Motion to Stay Proceedings Until the Patent and Trademark Office Completes Re-Examination of the Three Patents in Suit, dated Apr. 5, 2005.
- NCSA "What's New", <http://archive.ncsa.uiuc.edu/SDG/Software/Mosaic/Docs/old-whats-new/whats-new-0294.html>, Feb. 28, 1994, 17 pages.
- Business Wire, CommerceNet Urges Government to Ease Export Restrictions on Encryption Products: Consortium's New White Paper Articulates Position on the Export of Cryptography-Based Products, Jun. 26, 1995, 2 pages.
- "Advanced Electronic Credit Authorization Through the Amherst Group SNET", New Releases, New Haven, CT, Dec. 7, 1987, 2 pages.
- Anderson, Scot et al., "Sessioneer: Flexible Session Level Authentication With Off the Shelf Servers and Clients", http://www.igd.fhg.de/archive/1995_www95/papers/77/sessioneer2.html, pp. 1–7.
- Buhle, E. Loren, Jr., "Wide Area Information Servers", Digital Systems Journal, Sep./Oct. 1994, pp. 13–18.
- Comer, D., et al., "The Tilde File Naming Scheme", The 6th International Conference on Distributed Computer Systems, IEEE Computer Society, Cambridge, MA., May 1996, pp. 509–514.
- Comer, D.E., et al. "A Model of Name Resolution in Distributed Systems", The 6th International Conference on Distributed Computer Systems, IEEE Computer Society, Cambridge, MA, May 1996, pp. 523–530.
- Computer Fraud & Security Bulletin, "Underlying Security Mechanisms", Mar. 1997, 2 pages.
- Cookies and Privacy FAQ, <http://search.netscape.com/assist/security/faqs/cookies.html> Jan. 9, 1998 at 4:29 pm., pp. 1–3.
- Net Market Company, "Numerous News Media Stories", New York Times, Front Page of Business Section, Aug. 12, 1994, 4 pages.
- Phillips, K., "SuperHighway Access Eases Internet Entry", PC Week, Oct. 31, 1994, 3 pages.

US 5,909,492 C1

Page 4

- Poler, Ariel, "Improving WWW Marketing Through User Information and Non-Intrusive Communications", Internet Profiles Corporation (I/PRO), 2nd WWW Conference, Chicago, Illinois, Oct. 1994, 4 pages.
- Soverain's Disclosure of Asserted Claims and Preliminary Infringement Contentions dated Jun. 3, 2004.
- Supplemental Disclosure of Preliminary Invalidity Contentions by Amazon and the Gap dated Jul. 26, 2004.
- Deposition of G. Winfield Treese, dated Oct. 27, 2004.
- Soverain's Reply to Amazon.Com's Amended Counter-claims, dated Jan. 14, 2005.
- Third Supplement to Defendant Amazon's Initial Disclosures, dated Mar. 4, 2005.
- VideoTaped Deposition of Mark Levergood dated Mar. 8, 2005 (2 parts).
- VideoTaped Deposition of Andrew Payne dated Mar. 11, 2005.
- VideoTaped Deposition of Stephen Morris dated Mar. 9, 2005.
- VideoTaped Deposition of Glenn Trewitt dated Jan. 25, 2005 (2 parts).
- Soverain's Fourth Supplemental Responses to Amazon's First Set of Interrogatories (Nos. 1-14) dated Mar. 21, 2005.
- Soverain's Responses to Interrogatory Nos. 22, 23, 26 and 36 of Amazon's Third Set of Interrogatories (Nos. 17-28) dated Mar. 21, 2005.
- Soverain's Responses to Amazon's First Set of Requests for Admission to Plaintiff Soverain Software (Nos. 1-100) dated Mar. 21, 2005.
- Memorandum Opinion dated Apr. 7, 2005.
- "It will happen", article excerpt from infoHighway, vol. 2-1, Jan. 1995.
- Aronson, Dan, et al., Electronic Mail to multiple recipients of the www-talk list (www-talk@info.cern.ch) on "Access and session control" dated Sep. 15, 1994.
- Derier, Christian, "The World-Wide Web Gateway to Hyper-G: Using a Connectionless Protocol to Access Session-Oriented Services", Institut für Informationverarbeitung und Computergestützte neue Medien, Graz, Austria, dated Mar. 1995.
- English, Joe, Electronic Mail to multiple recipients of the www-talk list (www-talk@info.cern.ch) on "Re: Identifying Mosaic session" dated Dec. 20, 1994.
- Fielding, Roy, software distribution archive for the HTTP log file analysis program, wwwstat v101, dated Apr. 24, 1994, published at <http://www.ics.uci.edu/WebSoft/wwwstat/>.
- Hall, Devra, et al., "Build a Web Site: The Programmer's Guide to Creating, Building, and Maintaining a Web Presence", published Apr. 1995. ISBN 0-7615-0064-2.
- Hughes, Kevin, source code file for the HTTP log file analysis program, getstats v1.0, dated Feb. 1, 1994, published at <http://eit.com/software/getstats/getstats.html>—Version 1, 64 pages.
- Hughes, Kevin, source code file for the HTTP log file analysis program, getstats v1.0, dated Feb. 1, 1994, published at <http://eit.com/software/getstats/getstats.html>—Version 2, 64 pages.
- McCartney, Todd, Message posted to Usenet public discussion group, rec.arts.disney, dated Nov. 21, 1994.
- Pitkow, et al., "Results from the First World Wide Web Use Survey", presented at the First International Conference on the World Wide Web, Geneva, Switzerland, Ma 25-27, 1994, published at <http://www94.web.cern.ch/WWW94/PrelimProcs.html> on Jun. 2, 1994, and reprinted in the Journal of Computer Networks and ISDN Systems, vol. 27, No. 2, Nov. 1994, Elsevier Science B.V.
- The NetMarket Company, NetMarket PGP Help file, from <http://www.netmarket.com>, dated Dec. 10, 1994.
- "CompuServe Videotex Network Offers Marketing Research Service, ad Test", Marketing News, Nov. 25, 1983, p. 21.
- "Electronic In-Home Shopping: 'Our Stores are Always Open', " Chain Store Age Executive, Mar. 1985, pp. 111, 116.
- "Mail Offers a Holiday Treat for Hackers," Advertising Age, Nov. 13, 1985, p. 76.
- "Redcoats Join Communications Fight", Industry Week, Feb. 22, 1982, pp. 108-109.
- "Suddenly, VideoTex is Finding an Audience", Business Week, Oct. 19, 1987, pp. 92-94.
- "Taking Advantage of the Past", Advertising Age, Apr. 11, 1983, pp. M36-37.
- American National Standard: "Financial Institution Retail Message Authentication"; ANXI X9, 1986.
- American National Standard: "Interchange Message Specification for Debit and Credit Card Message Exchange Among Financial Institutions"; ANXI-X9, Feb. 1988.
- Anderson, Ross J.: UEPS—A Second Generation Electronic Wallet: Proc. of the Second European Symposium on Research in Computer Security (ESORICS); Toulouse, France, pp. 411-418, undated.
- Bellcore Internal e-mail, Nov. 24, 1993, 7 pages.
- Bender, M., EFTC: Electronic Funds Transfer Systems:, Kennikat Press; Port Washington, New York, pp. 42-46, 1975.
- Beutelspacher et al., "Payment Applications with Multifunctional Smart Cards", Smart Card 2000, 1989, pp. 95-101.
- Booz, Allen & Hamilton, "How to Buy Information with a First Virtual Account", Apr. 11, 1994, 63 pages.
- Bos et al., "SmartCast: A Practical Electronic Payment System" Centre for Mathematics and Computer Science, Aug. 1990, pp. 1-8.
- Burk et al., "Digital Payment Systems Enabling Security and Unobservability", Computer & Security, 1989, pp. 399-415.
- Burk et al., "Value Exchange Systems Enabling Security and Unobservability", Computer & Security, 1990, pp. 715-721.
- Chaum et al., "Untraceable Electronic Cash"; Advances in Cryptology, 1988, pp. 319-327.
- Chaum et al., "Implementing Capability-Based Protection Using Encryption", Electronics Research Laboratory, University of California, Berkeley, 1978, 12 pages.
- Cohen, D., "Computerized Commerce", ISI Reprint Series IS/RS-89-243; Oct. 1989, Reprinted from Information Processing 89, Proceedings of the IFIP World Computer Congress, Held Aug. 28-Sep. 1, 1989, 8 pages.
- Cohen, D., "Electronic Commerce", University of Southern California Information Sciences Institute, Research Report ISI/RR-89-244, Oct. 1989, 42 pages.
- CompuServe International: CompuServe Information Service Users Guide, pp. 109-113; 1986.
- Computer Shopper, "Internet for Profit", Nov. 1994, pp. 180-182; 190-192; 522-528, 532, 534.

US 5,909,492 C1

Page 5

- "Consumers Plugging into New Electronic Mail", Advertising Age, Mar. 4, 1985, p. 74.
- Damgard, "Payment Systems and Credential Mechanisms with Provable Security Against Abuse by Individuals", Advances in Cryptology—CRYPTO '88, 1988, pp. 328–335.
- Davies et al., "Security for Computer Networks: An Introduction to Data Security in Teleprocessing and Electronic Funds Transfer", John Wiley & Sons, Dec. 5, 1985, pp. 304–336.
- Dukach, S., "SNPP: A Simple Network Payment Protocol"; MIT Laboratory for Computer Science: Cambridge, MA, 7 pages.
- Even et al., "Electronic Wallet"; Computer Science Department, Israel, pp. 383–386.
- Ferranini, E., "Direct Connections for Software Selections", Business Computer Systems, Feb. 1985, pp. 35–38.
- Fujioka, et al., "ESIGN: An Efficient Digital Signature Implementation for Smart Cards," Advances in Cryptology—Eurocrypt '91, Apr. 1991; pp. 446–457.
- Gifford et al., "Case Study; The Cirrus Banking Network", Communications of the ACM, Aug. 1995, 2 pages.
- Gifford, David K., "Notes on Community Information Systems", MIT/LCS/TM-419, Dec. 10, 1989, 7 pages.
- Gifford, David K., "Cryptographic Sealing for Information Secrecy and Authentication", Stanford University and Xerox Palo Alto Research Center, Communications of the ACM, vol 25, No. 4, Apr. 1982, pp. 274–286.
- Hakola., et al., A System for Automatic Value Exchange Exchange, Proceedings—Fall Joint Computer Conference, Nov. 1966, pp. 579–589.
- Harty et al., "Case Study: The VISA Transaction Processing System", May 1988, pp. 1–23.
- Hirschfeld, "Making Electronic Refunds Safer", Laboratory for Computer Science, MIT, 1992, 4 pages.
- Information Networking Institute, Carnegie Mellon University, Prototype Scope Document, INI Technical Report 1993-1, Oct. 14, 1993, 29 pages.
- International Organization for Standardization, International Standard—Bank Card Originated Messages—Interchange Message Specifications Content for Financial Transactions, ISO 8383 1987.
- Intuit Corp. Quicken User's Guide, "Paying Bills Electronically", no date, pp. 171–191.
- Jansson, L., "General Electronic Payment System", 7th Proceedings of the International Conference on Computer Communication, 1985, pp. 832–835.
- Kenny, "EDI Security: Risks and Solutions", SD-Scion UK Limited, 1992, 12 pages.
- Knapskog, "Privacy Protected Payments—Reliaization of a Protocol that Guarantees Payer Anonymity", EuroCrypt 1988, pp. 107–121.
- Krajewski, M., "Concept for a Smart Card Kerberos", 15th National Computer Security Conference, Oct. 1992, 9 pages.
- Krajewski, M., et al., "Applicability of Smart Cards to Network User Authentication", Computing Systems, vol. 7, No. 1, Winter 1994, pp. 75–89.
- Krajewski, M., "Smart Card Augmentation of Kerberos", Privacy and Security Research Group Workshop on Network and Distributed System Security, Feb. 1993, 5 pages.
- Lai et al., "Endorsements, Licensing, and Insurance for Distributed System Services", Information Sciences Institute, U. of Southern California, undated, 6 pages.
- Low et al., "Anonymous Credit Cards", undated, pp. 1–16.
- Medvinsky et al., "Electronic Currency for the Internet", Electronic Markets, Sep. 1993, pp. 30–31.
- Messmer, "NIST Stumbles on Proposal for Public-Key Encryption", Network World, Jul. 27, 1992, pp. 1–6.
- Mosaic Communications Corp. Press Release, "Mosaic Communications Unveils Network Navigator and Server Software for the Internet", Sep. 1994, 3 pages.
- National Westminster Bank Group, "Clearing House Automated Payments System", undated, 31 pages.
- Needham, Roger M., "Adding Capability Access to Conventional File Servers", Xerox Palo Alto Research Center, California, undated, pp. 3–4.
- Okamoto et al., "University Electronic Cash", NTT Laboratories, pp. 324–337.
- Payment Systems, "United States", undated, pp. 217–235.
- Perry, "Electronic Banking Goes to Market", IEEE Spectrum, Feb. 1988, pp. 46–49.
- Pfitzmann et al., "How to Break and Repair a Provably Secure Untraceable Payment System", pp. 338–350.
- Ph, van Heurck, "TRASEC: Belgian Security Systems for Electronic Funds Transfers," Computers & Security, 1987, pp. 261–268.
- Pongratz, et al., "IC Cards in Videotex Systems", Smart Card 2000, 1989, pp. 179–186, 1 page.
- Recommendation X.509: The Directory—Authentication framework, Fascicle VIII.8 (Melbourne 1988) pp. 48–82.
- Remery, P., et al., "Le paiement electronique", L'Echo des Recherches, No. 134, 1988, pp. 15–23.
- Rescorla E., et al., "The Secure HyperText Transfer Protocol", Enterprise Integration Technologies, Dec. 1994, 35 pages.
- Rescorla, E., et al., "The Secure HyperText Transfer Protocol", Enterprise Integration Technologies, Jun. 1994, 22 pages.
- Rivest et al., "A Method for Obtaining Digital Signatures and Public-Key Cryptosystems", Laboratory for Computer Science, MIT, undated, pp. 1–15.
- Schaumuller-Bichl, "IC Cards in High-Security Applications", Selected Papers from the Smart Card Conference, Springer Verlag, 1991, pp. 177–199.
- Shain, "Security inElectronic Funds Transfer: Message Integrity in Money Transfer and Bond—Settlements through GE Information Services' Global Network", Computers & Security, vol. 8, No. 3 1989, pp. 209–221.
- Sirbu, Marvin A., "Internet Billing Service Design and Prototype Implementation", pp. 1–19.
- Society for Worldwide Interbank Financial Telecommunications S.C.; "A S.W.I.F.T. Overview" no date, 34 pages.
- Staskauskas, "The Formal Specification and Design of a Distributed Electronic Funds—Transfer System", EEE, 1988, pp. 1515–1528.
- Stol, "Privacy Protected Payments—A Possible Structure for a Real Implementation and Some Resource Considerations", Reproduced by U.S. Department of Commerce, 83 pages.
- Strazewski, "Computerized Service Sets Shoppers Hacking", Advertising Age, Feb. 22, 1988, p. 62.
- Takei, Videotex Information System and Credit System Connecting with MARS 301-of JNR, Japanese Railway Engineering, No. 95, Sep. 1985, pp. 9–11.
- Tanaka et al., "Untraceable Electronic Funds Transfer Systems", Electronics and Communications in Japan, Part 3, vol. 72, No. 9, 1989, pp. 47–54.

US 5,909,492 C1

Page 6

- Tenenbaum et al., "Development of Network Infrastructure and Services for Rapid Acquisition", Adapted from a White Paper Submitted to DARPA by MCC in Collaboration with EIT and ISI, Jan. 1992, pp. 1-19.
- Tunstall, "Electronic Currency", Smart Card 2000: The Future of IC Cards, Oct. 1987, pp. 47-48.
- Vittal, "Active Message Processing: Messages as Messengers", 1981, pp. 175-195.
- Waidner, et al., "Loss-Tolerance for Electronics Wallets", Fault-Tolerant Computing: 20th International Symposium, Jun. 26-28, 1990, pp. 140-147.
- Weber, "Controls in Electronic Funds Transfer Systems: A Survey and Synthesis", Computers & Security, 1989, pp. 123-137.
- Williams, "Debt Program Cuts Fraud—CompuServe Plan a Success", Pensions & Investment Age, Feb. 4, 1985, pp. 31-33.
- Joint Claim Construction Chart (Patient Local Rule 4-5D)), filed Dec. 27, 2004 with Appendix A.
- Order Denying Amazon's Motion to Stay Proceedings Pending Completion of the Reexamination.
- Transcript of the Markman Hearing Before the Honorable Leonard David United States District Judge, Jan. 6, 2005.
- Complaint for Patent Infringement filed Jan. 12, 2004.
- Amazon.com's Answer, Affirmative Defenses, and Counter-claims to Soverain Software's Complaint filed Mar. 9, 2004.
- Amazon.com's Response to Plaintiffs First Set of Interrogatories (Nos. 1-22) filed Jun. 11, 2004.
- Soverain's Responses and Objections to Amazon.com's First Set of Interrogatories (Nos. 1-14) filed Jun. 11, 2004.
- Disclosure of Preliminary Invalidity Contentions by Defendants Amazon.com and the Gap (with Exhibit A) filed Jul. 6, 2004.
- Soverain's Supplemental Responses to Amazon.com's First Set of Interrogatories (Nos. 1-14) filed Aug. 13, 2004.
- Soverain's Second—Supplemental Response to Amazon.com's First Set of Interrogatories (Nos. 1-14) filed Sep. 21, 2004.
- Soverain's Third Supplemental Response to Amazon.com's First Set of Interrogatories (Nos. 1-14).
- Soverain's Preliminary Claim Construction (Patent Local Rule 4-2) filed Sep. 2, 2004.
- Joint Disclosure of Preliminary Claim Construction and Extrinsic Evidence by Defendants Amazon.com and the Gap (with Exhibits A-B) filed Sep. 2, 2004.
- Joint Claim Construction and Prehearing Statement (Patent Local Rule 4-3) (with Exhibits A-D) filed Oct. 4, 2004.
- Amazon.com's First Amended Answer, Affirmative Defenses, and Counterclaims to Soverain's Complaint filed Oct. 6, 2004.
- Declaration of Jack D. Grimes Ph.D., dated Nov. 15, 2004.
- Soverain's Claim Construction Brief Pursuant to Patent Rule 4-5(a) dated Nov. 16, 2004.
- Declaration of Dr. Richard N. Taylor in Support of Defendants' Markman Brief dated Nov. 29, 2004.
- Joint Claim Construction Brief of Amazon.com and Gap dated Nov. 30, 2004.
- Soverain's Claim Construction Reply Brief Pursuant to Patent Rule 4-5(c) dated Dec. 7, 2004.
- "HTTP State Management Mechanism," <http://www.internic.net/rfc/rfc2109.txt> (Jan. 9, 1998)—<http://www.cse.ohio-state.edu/cgl-bin/rfc/rfc2965.html>.
- "maX.500—a Macintosh X.500 Directory Client". contents of WWW website, <http://www.umich.edu/~dirsvc/ldap/max500/index.htm> as of Jul. 7, 1997.
- "Mosaic Communications Unveils Network Navigator and Server Software for the Internet," Mosaic Communications Press Release, Sep. 1994.
- "Persistent Client State HTTP Cookies," http://search.netscape.com/newsref/std/cookie_spec.html (Jan. 9, 1998).
- 57 USPQ2D, "Amazon.com, Inc. v. Barnesandnoble.com, Inc." pp. 1746-1763.
- Abadi M., et al., "Authentication and Delegation with Smart-Cards." Oct. 1990, Chapter 67.
- Aho, A.V., et al., "Reports and Databases," in the AWK Programming Language, M.A. Harrison, ed., (Addison-Wesley), pp. 100-101 (1988).
- Anderson, R., "Why Cryptosystems Fail," 1st Conf.—Computer & Comm. Security, 1993-11/93-VA, USA, pp. 215-227.
- Andrade, et al., "Open On-Line Transaction Processing with the TUXEDO System," pp. 366-371, Digest of Papers, IEEE Computer Society Press, COMPSON Spring 1992, San Francisco, Calif.
- Berners-Lee, T., et al., "Target a Common Internet Syntax Where the User Password is Appended to a Specific URL," <http://www.ietf.org/rfc1738.txt?number=1738>.
- Bjorn N. Freeman-Benson, "Using the Web to Provide Private Information," First International Conference on the World Wide Web, WWW94, May 1994, 5 pages.
- Bob Novick, (9503) Internet Marketing: The Clickstream, Mar. 1995, [<http://www.i-m.com/archives/9503/0375.htm>] 3 pages.
- Bowman, et al., "Univers: An Attribute-Based Name Server," Software Practice and Experience, vol. 20(4) 403-424 (Apr. 1990).
- Brian W. Kernighan and Dennis M. Ritchie, "The C Programming Language" second edition, AT&T Bell Laboratories, (N.J., Prentice Hall) pp. 17-21 (1998).
- Catledge L.D., "Characterizing Browsing Strategies in the World-Wide Web," http://www.igd.thg.de/archive/1995_.../UserPatterns.Paper4.formatted.htm.
- Chaum, D., "Achieving Electronic Privacy," Scientific American, Aug. 1992, pp. 96-101.
- Cheriton D.R., et al., "Uniform Access to Distributed Name Interpretation in the V-System," pp. 290-297, 4th International Conference on Distributed Computing System, IEEE Computer Society, San Francisco, Calif., May, 1984.
- Choudhury, Abhijit K., et al., "Copyright Protection for Electronic Publishing Over Computer Networks," IEEE Network, The Magazine of Computer Communications, vol. 9, No. 3, pp. 12-20, May 1995.
- Clickstream, Oct. 1996, The word Spy. [<http://www.wordspy.com/words/clickstream.asp>], 2 pages.
- Computer and Business Equipment Manufacturers Association, "American National Standard for Information Systems—Database Language SQL" (N.Y., American National Standards Institute) pp. 27-28 (1988).
- Curtis, R., et al., "Naming in Distributed Language Systems," pp. 298-302, 4th International Conference on Distributed Computing Systems, IEEE Computer Society, San Francisco, CA May 1984.
- Droms, R.E. "Access to Heterogenous Directory Services," Proceedings IEEE INFOCOM '90, pp. 1054-1061, San Francisco, Calif. Jun. 3-7, 1990.

US 5,909,492 C1

Page 7

- Gary Weiz, "The Media Business on the WWW", Proceedings of the Second World Wide Web Conference 1994: Mosaic and the Web, Oct. 1994, 6 pages.
- Gligor, V.D., "Object Migration and Authentication," IEEE Transactions of Software Engineering, vol. SE-5, No. 6, Nov. 1979, pp. 607-611.
- Good, B., "Experience with Bank of America's Distributive Computing System," pp. 2-8, IEEE 1983.
- Hitchens, M., et al., "Bindings Between Names and Objects in a Persistent System," Proceedings of the 2nd International Workshop on Object Orientation in Operating Systems, IEEE Computer Society, pp. 26-37, Dourdan, FR, Sep. 1992.
- Housel, B.C., et al., "SNA Distribution Services," IBM Systems Journal, pp. 319-343, vol. 22, No. 4, 1983.
- Inselberg, A., "An Approach to Successful Online Transaction Processing Applications," AFIPS Conference Proceedings, 1985 National Computer Conference, pp. 419-427, Chicago, Ill., Jul. 15-18, 1985.
- Kahan, Jose, "A capability-based authorization model for the World-Wide Web," http://www.igd.fhg.de/archive/1995_www95/proceedings/papers/86/CaMWWW.html pp. 1-14.
- Kahan, Jose, "A Distributed Authorization Model for WWW," <http://www.isoc.org/HMP/PAPER/107/html/paper.html> pp. 1-16.
- Kahan, Jose, "A New Authorization Model for Distributed Multimedia Information Consultation Systems" English Translation, pp. 1-21.
- Kahan, Jose, "Un nouveau modele d-autorisation pour les systemes de consultation d-information multimedia reperree," pp. 45-57.
- Kelley, A., and Pohl, I., "Arrays, Strings, and Pointers," in a Book on C, A, Apt, ed., (the Benjamin/Cummings Publishing Company, Inc.) pp. 33-37 (1984).
- Kluchi, T., et al., "C-HTTP—The Development of a Secure, Closed HTTP-Based Network on the Internet," 1996 IEEE, pp. 64-75.
- Lampson, B.W., "Designing a Global Name Service," pp. 1-10, Proceedings of the 5th Annual ACM Symposium on Principles of Distributed Computing, ACM, Calgary, Alberta, Canada, Aug. 1986.
- Lim, Jong-Gyun, "Using Coolists to Index HTML Documents in the Web," <http://www.ncsa.uiuc.edu/SDG/TT94/Proceedings/Search/lim/coolist.htm>, pp. 1-8.
- Lou Montulli, Electronic Mail to Multiple Recipients of the www-talk list (www-talk.1995a2/0134.html) on "Session Tracking" (omi.mail.www-talk, Apr. 18, 1995).
- Menefee, C., "New host for Internet Commercial Site Index," Newsbytes Nov. 9, 1994, p. 15.
- Metcalf, R.M. "Commercialization of the Internet Opens Gateways to Entrepreneurs," InfoWorld, Aug. 8, 1994, p. 44.
- Michalski, J., "Content in context: the Future of SGML and HTML," Release 1.0, Sep. 27, 1994, pp. 1-10.
- NCSA HTTPd 1.5 Beta How to Redirect, "The New Redirect Directives."
- Neuman, B.C., "Proxy-Based Authorization and Accounting for Distributed Systems," Proceedings on the 13th International Conference on Distributed Computing Systems, Pittsburgh, May 1993, pp. 283-291.
- Notkin, D., "Proxies: A Software Structure for Accomodating Heterogeneity," Software—Practice and Experience, vol. 20(4), 357-364, Apr. 1990.
- Ordille, J.J., et al., "Nomenclature Descriptive Query Optimization for Large X.500 Environments," pp. 185-196, SIGCOM '91 Conference, Communication Architectures & Protocols, vol. 21, No. 4, Zurich, Switzerland, Sep. 1991.
- Peterson, Larry L., "A Yellow-Pages Service for a Local-Area Network," ACM Proceedings of the ACM SIGCOMM 87 Workshop, ACM Press, 1988, pp. 235-242.
- Pitkow, J.E., "Webviz: A Tool for World-Wide Web Access Log Analysis," First International World Wide Web Conf., May 1994, 7 pgs.
- Pitkow, J.E., and Recker, M.M., Using the Web as a Survey Tool: Results from Second WWW User Survey,: http://www.igd.fhg.de/archive/1995_www95/papers/79/survey/survey_2_paper.html.
- Ramanathan, Sirivas, et al., "Architectures for Personalized Multimedia," IEEE Multimedia, vol. 1, No. 1, Computer Society, pp. 37-46, 1994.
- Rescorla, E., et al., "The Secure HyperTest Transfer Protocol," Aug. 1999.
- Rivest, R., "The MD5 Message-Digest Algorithm," MIT Laboratory for Computer Science and RSA Data Security, Inc., Apr. 1992.
- Schwartz, et al., "A Name Service for Evolving, Heterogeneous Systems," Proceedings of the 11th ACM Symposium on Operating Systems Principles, vol. 21, No. 5, pp. 52-62, Austin, TX, Nov. 1987.
- Schwartz, M.F., et al., Experience with a Semantically Cognizant Internet White Pages Directory Tool, Journal of Internetworking: Research and Experience, pp. 1-22 (1990).
- Sedayao, J., "Mosaic Will Kill My Network!—Studying Network Traffic Patterns of Mosaic Use", http://www.ncsa.uiuc.edu/SDG/TT94/P...qs/DDay/sedayao/mos_traf_paper.htm.
- Sheltzer, et al., "Name Service Locality and Cache Design in a Distributed Operating System," University of California, Los Angeles, 8 pgs.
- Squillante, M.C., et al., Integrating Heterogeneous Local Mail Systems, pp. 59-67, IEEE Software, Nov. 1989.
- Terry, D.B., "Structure-free Name Management for Evolving Distributed Environments," pp. 502-508, 6th International Conference on Distributed Computing Systems, IEEE Computer Society, Cambridge, MA, May 1986.
- Voydock V., et al., "Security Mechanisms in High Level Network Protocols," Computing Surveys, vol. 15, No. 2, Jun. 1983, pp. 135-171.
- Welch, B., et al., "Prefix Tables: A Simple Mechanism for Locating Films in a Distributed System," pp. 184-189, 6th International Conference on Distributed Computing Systems, IEEE Computer Society, Cambridge, MA, May 1996.
- WordPerfect for Macintosh, pp. 153-162 (1990).
- Zatti, et al., "Naming and Registration for IBM Distributed Systems," IBM Systems Journal, pp. 353-380, vol. 31, No. 2, 1992.
- "Here it is, World" internet postings to comp.infosystems.www.users discussion list re: Mosaic Netscape (Oct. 13, 1994-Oct. 17, 1994) available at: http://groups.google.com/group/comp.infosystems.www.users/browse_thread/thread/366fe4e21b3a9e2/9a210e5f72278328?lnk=st&num=5&hl=en#9a210e5f72278328.

US 5,909,492 C1

Page 8

"Netscape 0.93 Setup Questions" internet postings to comp.infosystems.www.misc discussion list re: Mosaic Netscape (Nov. 21, 1994–Nov. 25, 1994) available at: http://groups.google.com/group/comp.infosystems.www.misc/browse_thread/thread/da4c82efc6512f67/8dabc347291409d5?lnk=st&rnum=1&hl=en#8dabc347291409d5.

"Netscape and Cookies" internet postings to comp.infosystems.www.users discussion list re: Mosaic Netscape (Dec. 11, 1994–Dec. 13, 1994) available at: http://groups.google.com/group/comp.infosystems.www.users/browse_thread/thread/5347cb89bbae572b/3583cab5e6c13e94?lnk=st&rnum=3&hl=en#3583cab5e6c13e94.

"Cookies.txt" internet postings to comp.infosystems.www.users discussion list re: Mosaic Netscape (Dec. 23, 1994–Dec. 27, 1994) available at: http://groups.google.com/group/comp.infosystems.www.users/browse_thread/thread/613e81948e9cf6e4/134ade72dfc1c58d?lnk=st&rnum=2&hl=en#134ade72dfc1c58d.

"How to get stateful HTML documents" internet postings to comp.infosystems.www.misc discussion list (Jun. 24, 1994–Jun. 25, 1994) available at: http://groups.google.com/group/comp.infosystems.www.misc/browse_thread/thread/fd304fdb645529a/b8f6dab2aa73ae71?lnk=st&rnum=7&hl=en#b8f6dab2aa73ae71.

"How to add state info to a form" internet postings to comp.infosystems.www.providers discussion list (Jun. 30, 1994–Jul. 1, 1994) available at: http://groups.google.com/group/comp.infosystems.www.providers/browse_thread/thread/2acad6cdc8ebb8a/bf368e630add2c94?lnk=st&rnum=8&hl=en#bf368e630add2c94.

"Transactional Services on WWW" internet postings to comp.infosystems.www discussion list (May 21, 1994–Jun. 1, 1994) available at: http://groups.google.com/group/comp.infosystems.www/browse_thread/thread/bf430e6df8e6e7d/8ed77a97f5d0b96?lnk=st&hl=en#8ed77a97f5d0b9d6.

Dan Aronson, "access and session control" posting to www-talk discussion list (Sep. 14, 1994) available at: <http://1997.webhistory.org/www.lists/www-talk.1994q3/0901.html>.

Rick Troth, "access and session control" (Sep. 15, 1994) available at: <http://1997.webhistory.org/www.lists/www-talk.1994q3/0923.html>.

alain@hyperman.co.il, "Identifying Mosaic session" posting to www-talk discussion list (Dec. 20, 1994) available at <http://1997.webhistory.org/www.lists/www-talk.1994q4/1098.html>.

Joe English, "Re: Identifying Mosaic session", posting to www-talk discussion list (Dec. 20, 1994) available at: <http://1997.webhistory.org/www.lists/www-talk.1994q4/1109.html>.

Steven Majewski, "Identifying Mosaic session" posting to www-talk discussion list (Dec. 20, 1994) available at: <http://1997.webhistory.org/www.lists/www-talk.1994q4/1111.html>.

Nick Arnett, "Statelessness" posting to www-talk discussion list (May 16, 1994) available at: <http://1997.webhistory.org/www.lists/www-talk.1994q2/0562.html>.

Jared Rhine, "Statelessness" posting to www-talk discussion list (May 16, 1994) available at: <http://1997.webhistory.org/www.lists/www-talk.1994q2/0563.html>.

Simon Spero, "Statelessness" posting to www-talk discussion list (May 17, 1994) available at: <http://1997.webhistory.org/www.lists/www-talk.1994q2/0579.html>.

Jim McBeath, "Statelessness" posting to www-talk discussion list (May 27, 1994) available at: <http://1997.webhistory.org/www.lists/www-talk.1994q2/0683.html>.

Philip Hallam-Baker, "Statelessness" posting to www-talk discussion list (May 30, 1994) available at: <http://1997.webhistory.org/www.lists/www-talk.1994q2/0705.html>.

Trewitt, Glenn. *Using Tcl to Process HTML Forms*, Digital Equipment Corporation Network Systems Laboratory TN-14, dated Mar. 1994.

Viescas, John L., *The Official Guide to the Prodigy Service*, Microsoft Press, 1991, ISBN 1-55615-374-0.

BizNet Technologies, *Versatile Virtual Vending*, published at <http://www.bnt.com>, Sep. 12, 1994.

* cited by examiner

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EX PARTE
REEXAMINATION CERTIFICATE
ISSUED UNDER 35 U.S.C. 307

THE PATENT IS HEREBY AMENDED AS
INDICATED BELOW.

Matter enclosed in heavy brackets [] appeared in the patent, but has been deleted and is no longer a part of the patent; matter printed in italics indicates additions made to the patent.

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims 1–38 is confirmed.

New claims 39–108 are added and determined to be patentable.

39. A hypertext statement system in accordance with claim 15, wherein the network is an Internet.

40. A hypertext statement system in accordance with claim 15, wherein the client computer is a buyer computer, and at least one of the server computers is a payment computer.

41. A hypertext statement system in accordance with claim 15, wherein the statement document is sent by at least one of the server computers to the client computer in response to a statement URL sent by the client computer to at least one of the server computers.

42. A hypertext statement system in accordance with claim 41, wherein the statement URL includes a URL authenticator that is a digital signature based on a cryptographic key; wherein the URL authenticator is a hash of information contained in the statement URL;

wherein at least one of the server computers verifies whether the statement URL authenticator was created based upon the information contained in the statement URL using the cryptographic key.

43. A hypertext statement system in accordance with claim 42, wherein if verification by at least one of the server computers fails, then at least one of the server computers sends a document to the client computer indicating that access is denied.

44. A hypertext statement system in accordance with claim 42, wherein the statement URL comprises a client computer network address;

wherein the client computer network address is verified by matching it with the network address specified in the statement URL.

45. A hypertext statement system in accordance with claim 44, wherein if verification fails, then at least one of the server computers sends a document to the client computer indicating that access is denied.

46. A hypertext statement system in accordance with claim 42, wherein the client computer prompts the user for an account name and password by creating an account name prompt and a password prompt.

47. A hypertext statement system in accordance with claim 46, wherein at least one of the server computers verifies that the account name and password provided by the user match a previously provided account name and password.

48. A hypertext statement system of claim 47, wherein if the account name and password verification fails, then at least one of the server computers sends a document to the client computer indicating that access to at least a portion of a network sales system is denied.

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49. A hypertext statement system of claim 44, wherein if a payment amount exceeds a threshold, then the user is prompted for security-related information;

wherein at least one of the server computers verifies that the security-related information matches previously provided security-related information.

50. A hypertext statement system in accordance with claim 49, wherein if the security-related verification fails, then the payment computer sends a document to the buyer computer indicating that access is not allowed.

51. A hypertext statement system in accordance with claim 49, wherein at least one of the server computers transmits the statement document to the client computer, and the client computer displays the statement document to the user.

52. A hypertext statement system in accordance with claim 51, wherein the client computer is a buyer computer; wherein at least one of the server computers retrieves settlement data from a settlement database for use in generating the statement document.

53. A hypertext statement system in accordance with claim 15, wherein the transaction detail hypertext link includes a transaction detail URL;

wherein the transaction detail URL includes a URL authenticator that is a digital signature based on a cryptographic key;

wherein the URL authenticator is a hash of information contained in the transaction detail URL;

wherein at least one of the server computers verifies whether the transaction detail authenticator was created from information contained in the transaction detail URL based upon the cryptographic key; wherein the transaction detail URL comprises a client network address;

wherein the client computer network address is verified by matching it with the network address specified in the transaction detail URL;

wherein the client computer prompts the user for an account name and password by creating an account name prompt and a password prompt;

wherein at least one of the server computers verifies that the account name and password entered by the user match a previously provided account name and password;

wherein if a payment amount exceeds a threshold, then the user is prompted for security-related information;

wherein at least one of the server computers verifies that the security-related information matches previously provided security-related information.

54. A hypertext statement system in accordance with claim 53, wherein the client computer is a buyer computer, and at least one of the server computers is a payment computer.

55. A hypertext statement system in accordance with claim 15, wherein the user requests customer service;

wherein in response to the user request, the client computer sends a customer service URL to at least one of the server computers, and at least one of the server computers creates a customer service form and sends the form to the client computer;

wherein the form contains an area for the user to provide comments.

56. A hypertext statement system in accordance with claim 55, wherein the client computer sends the user's comments to at least one of the server computers;

wherein at least one of the server computers processes the user comments.

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57. A hypertext statement system in accordance with claim 15, wherein the user requests display of a product listed on the statement document.

58. A hypertext statement system in accordance with claim 57, wherein the client computer sends an access URL to a second server computer.

59. A hypertext statement system in accordance with claim 58, wherein the access URL comprises an authenticator based on a cryptographic key;

wherein the access URL authenticator is a hash of other information in the access URL;

wherein the second server computer verifies whether the access URL authenticator was created from information contained in the access URL using a cryptographic key;

wherein the access URL comprises a duration of time for access indicator, and the second server computer verifies whether the duration time for access has expired;

wherein the access URL comprises a buyer network address indicator, and the second server computer verifies that a buyer computer network address is the same as the buyer network address indicated in the access URL;

wherein the second server transmits a fulfillment document to the client computer.

60. A hypertext statement system in accordance with claim 15, wherein the statement document includes information on transactions by the user that took place in a given month.

61. A hypertext statement system in accordance with claim 60, wherein the information on transactions by the user includes at least one of the following types of information: a date of transaction, an identification of the product, a payment amount, and a merchant identifier.

62. A hypertext statement system in accordance with claim 60, wherein the statement document also includes one or more links to information regarding previous transactions by the user.

63. A hypertext statement system in accordance with claim 60, wherein for a transaction there is a transaction detail URL that includes a transaction identifier, a buyer network address, and a transaction detail URL authenticator.

64. A hypertext statement system in accordance with claim 63, wherein at least one of the server computers receives the transaction detail URL;

wherein the transaction detail URL includes a URL authenticator that is a digital signature based on a cryptographic key;

wherein the URL authenticator is a hash of information contained in the transaction detail URL;

wherein at least one of the server computers verifies whether the transaction detail URL authenticator was created from information contained in the transaction detail URL using the cryptographic key;

wherein the transaction detail URL comprises a client computer network address, and the client computer network address is verified by matching it with the network address specified in the transaction detail URL;

wherein the client computer prompts the user for an account name and password by creating an account name prompt and a password prompt, and at least one of the server computers verifies that the account name and password entered by the user match a previously provided account name and password;

wherein if a verification by at least one of the server computers fails, then at least one of the server com-

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puters sends a document to the client computer indicating that access is denied.

65. A hypertext statement system of claim 15, wherein if a payment amount provided by the user exceeds a threshold, then the user is prompted for security-related information, and at least one of the server computers verifies that the security information matches previously provided security-related information.

66. A hypertext statement system in accordance with claim 15, wherein the transaction detail document includes transaction information and merchant information.

67. A hypertext statement system in accordance with claim 66, wherein the transaction information includes at least one of the following types of information: a URL where a product is located, a transaction log identifier, a currency type used, a transaction date, an expiration time, an initiator number, a product description, a transaction amount, a beneficiary number, an IP address, a transaction type indicator, and a domain corresponding to the product.

68. A hypertext statement system in accordance with claim 66, wherein the merchant information includes at least one of the following types of information: a merchant telephone number, a merchant address, a merchant FAX number, a merchant e-mail address, a merchant principal name, a merchant home URL, and a merchant country.

69. A hypertext statement system in accordance with claim 66, wherein the transaction detail document comprises a customer feedback form, including the following fields for data entry by the user: account name, e-mail address, subject, and comments.

70. A hypertext statement system in accordance with claim 69, wherein the customer feedback form includes a hyperlink that a user activates to send the form to at least one of the server computers.

71. A hypertext statement system in accordance with claim 66, wherein the transaction detail document comprises a message to the user inviting comments by e-mail and giving an e-mail address.

72. A hypertext statement system in accordance with claim 66, wherein the transaction detail document further comprises a message to the user inviting comments by FAX and giving a FAX number.

73. A hypertext statement system in accordance with claim 15, wherein a digital advertising document is provided to the client computer.

74. The method of claim 16, wherein the network is an Internet.

75. The method of claim 16, wherein the client computer is a buyer computer, and at least one of the server computers is a payment computer.

76. The method of claim 16, wherein the statement document is sent by at least one of the server computers to the client computer in response to a statement URL sent by the client computer to at least one of the server computers.

77. The method of claim 76, wherein the statement URL includes a URL authenticator that is a digital signature based on a cryptographic key;

wherein the URL authenticator is a hash of information contained in the statement URL;

wherein at least one of the server computers verifies whether the statement URL authenticator was created based upon the information contained in the statement URL using the cryptographic key.

78. The method of claim 77, wherein if verification by at least one of the server computers fails, then at least one of the server computers sends a document to the client computer indicating that access is denied.

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79. The method of claim 77, wherein the statement URL comprises a client computer network address; wherein the client computer network address is verified by matching it with the network address specified in the statement URL.

80. The method of claim 79, wherein if verification fails, then at least one of the server computers sends a document to the client computer indicating that access is denied.

81. The method of claim 77, wherein the client computer prompts the user for an account name and password by creating an account name prompt and a password prompt.

82. The method of claim 81, wherein at least one of the server computers verifies that the account name and password provided by the user match a previously provided account name and password.

83. The method of claim 82, wherein if the account name and password verification fails, then at least one of the server computers sends a document to the client computer indicating that access to at least a portion of a network sales system is denied.

84. The method of claim 79, wherein if a payment amount exceeds a threshold, then the user is prompted for security-related information;

wherein at least one of the server computers verifies that the security-related information matches previously provided security-related information.

85. The method of claim 84, wherein if the security-related verification fails, then the payment computer sends a document to the buyer computer indicating that access is not allowed.

86. The method of claim 84, wherein at least one of the server computers transmits the statement document to the client computer and the client computer displays the statement document to the user.

87. The method of claim 86, wherein the client computer is a buyer computer;

wherein at least one of the server computers retrieves settlement data from a settlement database for use in generating the statement document.

88. The method of claim 16, wherein the transaction detail hypertext link includes a transaction detail URL;

wherein the transaction detail URL includes a URL authenticator that is a digital signature based on a cryptographic key;

wherein the URL authenticator is a hash of information contained in the transaction detail URL;

wherein at least one of the server computers verifies whether the transaction detail URL authenticator was created from information contained in the transaction detail URL based upon the cryptographic key;

wherein the transaction detail URL comprises a client network address;

wherein the client computer network address is verified by matching it with the network address specified in the transaction detail URL;

wherein the client computer prompts the user for an account name and password by creating an account name prompt and a password prompt;

wherein at least one of the server computers verifies that the account name and password entered by the user match a previously provided account name and password;

wherein if a payment amount exceeds a threshold, then the user is prompted for security-related information;

wherein at least one of the server computers verifies that the security-related information matches previously provided security-related information.

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89. The method of claim 88, wherein the client computer is a buyer computer, and at least one of the server computers is a payment computer.

90. The method of claim 16, wherein the user requests customer service;

wherein in response to the user request, the client computer sends a customer service URL to at least one of the server computers, and at least one of the server computers creates a customer service form and sends the form to the client computer;

wherein the form contains an area for the user to provide comments.

91. The method of claim 90, wherein the client computer sends the user's comments to at least one of the server computers;

wherein at least one of the server computers processes the user comments.

92. The method of claim 16, wherein the user requests display of a product listed on the statement document.

93. The method of claim 92, wherein the client computer sends an access URL to a second server computer.

94. The method of claim 93, wherein the access URL comprises an authenticator based on a cryptographic key;

wherein the access URL authenticator is a hash of other information in the access URL;

wherein the second server computer verifies whether the access URL authenticator was created from information contained in the access URL using a cryptographic key;

wherein the access URL comprises a duration of time for access indicator, and the second server computer verifies whether the duration time for access has expired;

wherein the access URL comprises a buyer network address indicator, and the second server computer verifies that a buyer computer network address is the same as the buyer network address indicated in the access URL;

wherein the second server transmits a fulfillment document to the client computer.

95. The method of claim 16, wherein the statement document includes information on transactions by the user that took place in a given month.

96. The method of claim 95, wherein the information on transactions by the user includes at least one of the following types of information: a date of transaction, an identification of the product, a payment amount, and a merchant identifier.

97. The method of claim 95, wherein the statement document also includes one or more links to information regarding previous transactions by the user.

98. The method of claim 95, wherein for a transaction there is a transaction detail URL that includes a transaction identifier, a buyer network address, and a transaction detail URL authenticator.

99. The method of claim 98, wherein at least one of the server computers receives the transaction detail URL;

wherein the transaction detail URL includes a URL authenticator that is a digital signature based on a cryptographic key;

wherein the URL authenticator is a hash of information contained in the transaction detail URL;

wherein at least one of the server computers verifies whether the transaction detail URL authenticator was created from information contained in the transaction detail URL using the cryptographic key;

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wherein the transaction detail URL comprises a client computer network address, and the client computer network address is verified by matching it with the network address specified in the transaction detail URL;

wherein the client computer prompts the user for an account name and password by creating an account name prompt and a password prompt, and at least one of the server computers verifies that the account name and password entered by the user match a previously provided account name and password;

wherein if a verification by at least one of the server computers fails, then at least one of the server computers sends a document to the client computer indicating that access is denied.

100. *The method of claim 16, wherein if a payment amount provided by the user exceeds a threshold, then the user is prompted for security-related information, and at least one of the server computers verifies that the security information matches previously provided security-related information.*

101. *The method of claim 16, wherein the transaction detail document includes transaction information and merchant information.*

102. *The method of claim 101, wherein the transaction information includes at least one of the following types of information: a URL where a product is located, a transaction log identifier, a currency type used, a transaction date,*

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an expiration time, an initiator number, a product description, a transaction amount, a beneficiary number, an IP address, a transaction type indicator, and a domain corresponding to the product.

5 103. *The method of claim 101, wherein the merchant information includes at least one of the following types of information: a merchant telephone number, a merchant address, a merchant FAX number, a merchant e-mail address, a merchant principal name, a merchant home URL, and a merchant country.*

10 104. *The method of claim 101, wherein the transaction detail document comprises a customer feedback form, including the following fields for data entry by the user: account name, e-mail address, subject, and comments.*

15 105. *The method of claim 104, wherein the customer feedback form includes a hyperlink that a user activates to send the form to at least one of the server computers.*

106. *The method of claim 101, wherein the transaction detail document comprises a message to the user inviting comments by e-mail and giving an e-mail address.*

20 107. *The method of claim 101, wherein the transaction detail document further comprises a message to the user inviting comments by FAX and giving a FAX number.*

25 108. *The method of claim 16, wherein a digital advertising document is provided to the client computer.*

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